

Repair Manual

Jetta 2011 ➤

Jetta Hybrid 2013 ➤

Jetta 2013 ➤

Jetta 2015 ➤

Fuel Supply - Gasoline Engines									
Engine ID	CLR A	CNL A	CRJA	CPLA	CPP A	CPK A	CPR A	CFN A	CFN B
	CYV D	CZC A	CZD A	CBZ B	CAV D	CTH D	CTH A	CAX A	CMS B
	CBP A	CKJA	CBT A	CBU A	CCC A	CAW B	CBF A	CCT A	CCZ A
	CAV A	CZTA	CWV A	CWV B					

Edition 01/2024





List of Workshop Manual Repair Groups

Repair Group

00 - General, Technical Data

20 - Fuel Supply



Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.

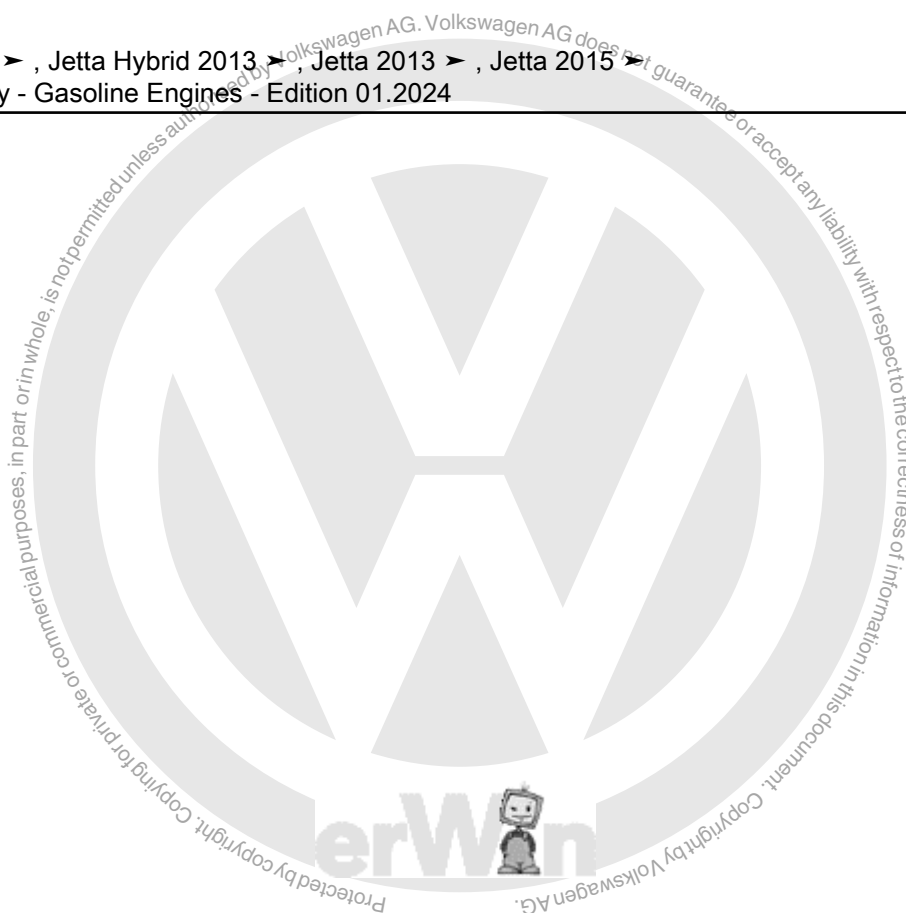
All rights reserved.

No reproduction without prior agreement from publisher.



Contents

00 - General, Technical Data	1
1 Safety Precautions	1
1.1 Safety Precautions when Working on Fuel Supply System	1
1.2 Safety Precautions during Road Test with Testing Equipment	1
1.3 Safety Precautions when Working on Vehicles with Start/Stop System	2
1.4 Safety Precautions when Working on High-Voltage Vehicles	2
1.5 Safety Precautions when Working near High-Voltage Components	3
2 Identification	4
2.1 Engine Number/Engine Specifications	4
3 General Information	6
3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System	6
4 Repair Information	7
4.1 Line Routing and Securing	7
4.2 General Repair Information	7
20 - Fuel Supply	8
1 Fuel Tank	8
1.1 Overview - Fuel Tank	8
1.2 Fuel Tank, Draining	14
1.3 Fuel Tank, Removing and Installing	25
2 Fuel Delivery Unit/Fuel Level Sensor	30
2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor	30
2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing	36
2.3 Fuel Level Sensor G , Removing and Installing	46
3 Wiring	48
3.1 Fuel Lines, Removing and Installing	48
4 Connector Couplings	52
4.1 Connector Couplings, Disconnecting	52
5 Fuel Filter	56
5.1 Overview - Fuel Filter	56
5.2 Fuel Filter, Removing and Installing	58
6 EVAP System	60
6.1 Connection Diagram - EVAP System	60
6.2 Overview - EVAP System	62
6.3 Overview - Diagnostic Pump	66
6.4 Leak Detection Pump, Removing and Installing	68
6.5 EVAP Canister, Removing and Installing	69
6.6 Fuel Tank, Checking Ventilation	69
6.7 Fuel System, Checking for Leaks	74
7 Accelerator Mechanism	78
7.1 Overview - Accelerator Pedal Module	78
7.2 Accelerator Pedal Position Sensors G79 / G185 , Removing and Installing	78
8 Fuel Pump	81
8.1 Transfer Fuel Pump G6 , Checking	81





00 – General, Technical Data

1 Safety Precautions

(Edition 01.2024)

K00590721.21 -- 1/31/2024

⇒ ["1.1 Safety Precautions when Working on Fuel Supply System", page 1](#)

⇒ ["1.2 Safety Precautions during Road Test with Testing Equipment", page 1](#)

⇒ ["1.3 Safety Precautions when Working on Vehicles with Start/Stop System", page 2](#)

⇒ ["1.4 Safety Precautions when Working on High-Voltage Vehicles", page 2](#)

⇒ ["1.5 Safety Precautions when Working near High-Voltage Components", page 3](#)

1.1 Safety Precautions when Working on Fuel Supply System

There is a risk of injury due to the fuel being under pressure.

The fuel system is under pressure. Injuries are possible from fuel spraying out.

Before opening the fuel system:

- Wear protective eyewear.
- Wear safety gloves.
- Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.

Procedure for reducing the high fuel pressure. Refer to ⇒ Rep. Gr. 24 ; Fuel Injection System; High Fuel Pressure, Reducing .

Leaking fuel increases the risk of fire.

When the battery is connected, the door contact switch activates the fuel pump when opening the driver door. Leaking fuel may ignite and start a fire.

- Before opening the fuel system, cut off the power supply to the fuel pump.

1.2 Safety Precautions during Road Test with Testing Equipment

There is a risk of injury from unsecured testing equipment.

If the front passenger airbag activates during a collision, unsecured testing equipment becomes a dangerous projectile.

- Secure testing equipment on the rear seat.
- or
- Have a second person operate testing equipment on the rear seat.



1.3 Safety Precautions when Working on Vehicles with Start/Stop System

There is a risk of injury due to the engine starting unexpectedly.

The engine may start unexpectedly in vehicles with the Start/Stop System activated. A message in the instrument cluster indicates whether the Start/Stop System is activated.

- Deactivate the Start/Stop System: switch off the ignition.

1.4 Safety Precautions when Working on High-Voltage Vehicles

Risk of injury due to electrocution

The ignition system is under high voltage when the engine is running. It is possible to be electrocuted by touching the ignition system.

- Never touch or remove the ignition wires when the engine is running or at cranking speed.

High voltage is extremely dangerous.

The high-voltage system is under high voltage. Electrocution can cause death or very serious personal injury.

- Individuals with electronic/medical life and health sustaining machines in or on their person cannot perform any work on high-voltage systems. Life and health sustaining machines are for example pain killer pumps, implanted defibrillators, pacemakers, insulin pumps, and hearing aids.
- Have the high-voltage system de-energized by a qualified person.

High voltage is extremely dangerous.

The high-voltage system is under high voltage. Electrocution can cause death or very serious personal injury from damaged high-voltage components and high-voltage cables.

- Visually inspect the high-voltage components and the high-voltage cables.
- Never use tools that are for cutting, deformed, or sharp edged.
- Never weld, solder, or use thermal adhesive or hot air.

There is a risk of injury due to the engine starting unexpectedly.

Active drive ready mode is difficult to identify in electric and hybrid vehicles. Parts of the body can be pinched or pulled in.

- Switch off the ignition.



- Place the ignition key outside of the vehicle interior.

There is a risk of damaging the high-voltage cables.

Incorrect handling can damage the insulation on high-voltage cables or high-voltage connectors.

- Never use the high-voltage cables and the high-voltage connectors for support.
- Never support tools on the high-voltage cables and the high-voltage connectors.
- Never sharply bend or kink the high-voltage cables.
- Pay attention to the coding when connecting the high-voltage connectors.

1.5 Safety Precautions when Working near High-Voltage Components

High voltage is extremely dangerous.

The high-voltage system is under high voltage. Electrocutation can cause death or very serious personal injury from damaged high-voltage components and high-voltage cables.

- Visually inspect the high-voltage components and the high-voltage cables.
- Never use tools that are for cutting, deformed, or sharp edged.
- Never weld, solder, or use thermal adhesive or hot air.





2 Identification

⇒ "2.1 Engine Number/Engine Specifications", page 4

2.1 Engine Number/Engine Specifications

Codes	CLRA	CNLA	CRJA	CPLA	CPPA	CPKA
Emissions values	EU 5	ULEV 2/ SULEV	EU 6	EU 5 Plus	EU 5 Plus	BIN 5 TIER 2
Dis- place- ment lit- ers	1.6	1.4	1.4	2.0	2.0	1.8
Output kW	77	110	110	155	155	125
Research Oc- tane Number (RON)	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾

1) 91 RON may be used if necessary but the performance will be reduced.

Codes	CPRA	CFNA	CFNB	CYVD	CZDA	CZCA	CZTA
Emissions values	PZEV; SU- LEV	EU 4	EU 4	EU 6	EU 6	EU 6	ULEV2
Dis- place- ment lit- ers	1.8	1.6	1.6	1.2	1.4	1.4	1.4
Out- put kW	125	77	63	81	110	92	110
Research Octane Number (RON)	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾

1) 91 RON may be used if necessary but the performance will be reduced.

2) exhaust emissions standard

Codes	CBZB	CAVD	CTHA	CTHD	CAXA	CMSB
Emissions values	EU 5	EU 5; EU 2 ddk ²⁾	EU 5	EU 5	EU 5; EU 2 ddk ²⁾	EU 4
Dis- place- ment lit- ers	1.2	1.4	1.4	1.4	1.4	1.4
Output kW	77	118	110	118	90	90
Research Oc- tane Number (RON)	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾

1) 91 RON may be used if necessary but the performance will be reduced.

2) exhaust emissions standard

Codes	CBPA	CKJA	CBTA	CBUA	CCCA	CAVA
Emissions values	ULEV 2	Level V	BIN 5 TIER 2	SULEV	EU 2, ddk ²⁾	EU 5



Codes	CBPA	CKJA	CBTA	CBUA	CCCA	CAVA
Displacement liters	2.0	2.0	2.5	2.5	2.5	1.4
Output kW	85	88 or 85 ³⁾	125	125	125	110
Research Octane Number (RON)	unleaded RON 95 ¹⁾	Alcohol or 87 ROZ unleaded	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾

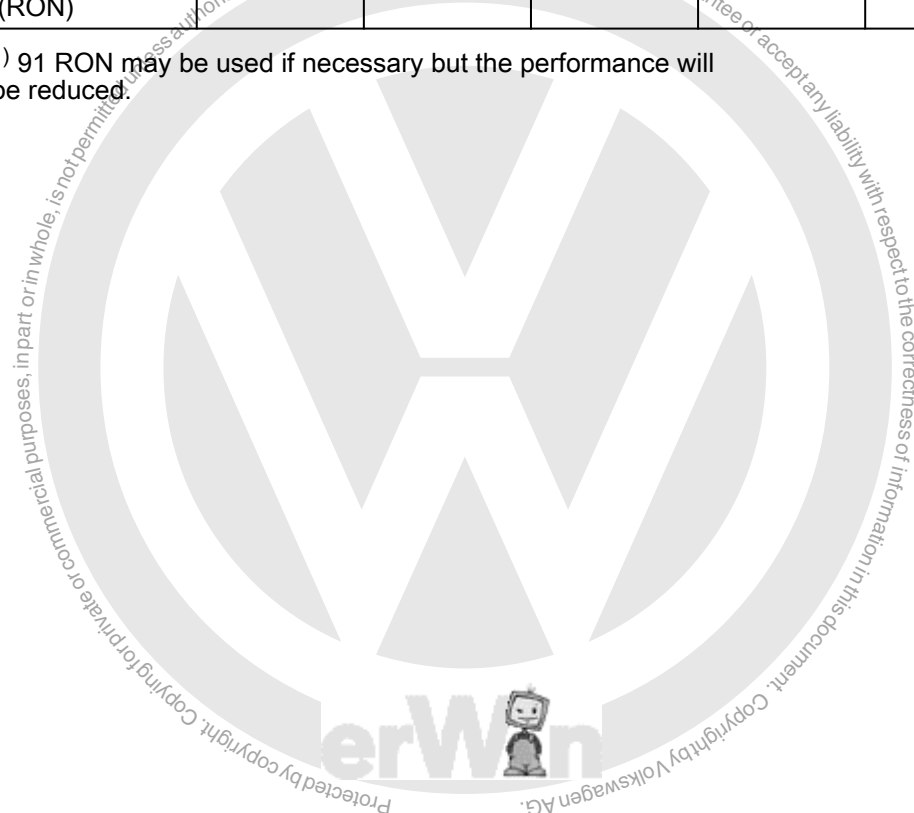
¹⁾ 91 RON may be used if necessary but the performance will be reduced.

²⁾ exhaust emissions standard

³⁾ Using 87 RON unleaded

Codes	CAWB	CBFA	CCTA	CCZA	CWVA	CWVB
Emissions values	EU 4	SULEV	ULEV 2	EU 5	EU 5 plus	EU 5 plus
Displacement liters	2.0	2.0	2.0	2.0	1.6	1.6
Output kW	147	147	147	147	81	66
Research Octane Number (RON)	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾	unleaded RON 95 ¹⁾

¹⁾ 91 RON may be used if necessary but the performance will be reduced.





3 General Information

⇒ [“3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System”, page 6](#)

3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System

Follow these “rules” when working on the fuel supply/injection system:

- ◆ Thoroughly clean the connection points and the surrounding area before loosening.
- ◆ Place the removed parts on a clean surface and cover them. Only use lint-free cloths.
- ◆ Carefully cover or seal opened components if the repair is not performed immediately.
- ◆ Only install clean parts: remove the replacement parts from their packaging just before installing them. Do not use parts that have been loosely stored or unpackaged (for example, in tool boxes etc.).
- ◆ Do not work with compressed air when the system is open.
- ◆ Do not move the vehicle.
- ◆ Immediately seal off any open lines and connections with clean plugs, for example, taken from the Engine Bung Set - VAS 6122- .
- ◆ Protect the disconnected connectors from dirt and moisture and only connect when they are dry.





4 Repair Information

⇒ ["4.1 Line Routing and Securing", page 7](#)

⇒ ["4.2 General Repair Information", page 7](#)

4.1 Line Routing and Securing

There is a risk of damaging the lines.

The lines can be damaged by the moving or hot components.

- Route lines in their original locations.
- Make sure there is sufficient clearance to moving or hot components.
- Replace all cable ties, heat shield boots, clips and similar which had to be removed during the removal process. Install in the same position.

- ◆ Mark the lines, for example, the fuel, vacuum and EVAP system lines and wires before removal to avoid interchanging them and to ensure the original installation position. If necessary, draw sketches or take pictures.

4.2 General Repair Information

Complete the following steps before starting procedures on the fuel supply system:

- ◆ Before starting work, place a suction hose near the installation opening for the fuel tank when the exhaust extracting system is switched on.
- ◆ This extracts the fuel vapors.
- ◆ If no exhaust extracting system is available, a radial fan (as long as motor is not in air flow) with a delivery volume greater than 15 m³/h (49.2 feet³/h) can be used.
- ◆ Do not let fuel come in contact with skin. Wear fuel-resistant gloves.
- ◆ Disable the current to the Transfer Fuel Pump - G6- . Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- ◆ Drain the fuel tank. Refer to ⇒ ["1.2 Fuel Tank, Draining", page 14](#) .



20 – Fuel Supply

1 Fuel Tank

⇒ [“1.1 Overview - Fuel Tank”, page 8](#)

⇒ [“1.2 Fuel Tank, Draining”, page 14](#)

⇒ [“1.3 Fuel Tank, Removing and Installing”, page 25](#)

1.1 Overview Fuel Tank

⇒ [“1.1.1 Overview - Fuel Tank, Vehicles with Externally Installed Fuel Filter”, page 8](#)

⇒ [“1.1.2 Overview - Fuel Tank, Vehicles with Fuel Filter in Fuel Delivery Unit Flange”, page 10](#)

⇒ [“1.1.3 Overview - Fuel Tank, Hybrid”, page 12](#)

1.1.1 Overview - Fuel Tank, Vehicles with Externally Installed Fuel Filter



1 - Bolt

2 - Cap

- ☐ Replace the seal if damaged.

3 - Ground Connection

- ☐ Check for secure fit

4 - Bolt

- ☐ 10 Nm

5 - Cable Guide

- ☐ For the ABS line

6 - Bolt

- ☐ Replace after removing
- ☐ 25 Nm

7 - Fuel Tank

- ☐ Removing and Installing. Refer to ⇒ ["1.3 Fuel Tank, Removing and Installing", page 25](#).

8 - Lock Washer

9 - Exhaust System Bracket

10 - Mounting Strap

- ☐ Note the installation position

11 - Heat Shield

12 - Fuel Supply Line

- ☐ Black
- ☐ To the high pressure pump connecting pipe
- ☐ Do not kink
- ☐ To disconnect, press the release button on the connecting piece
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Check for secure fit
- ☐ Pull on the connector coupling to check for secure fit.
- ☐ Connector Couplings, Disconnecting. Refer to ⇒ ["4.1 Connector Couplings, Disconnecting", page 52](#).

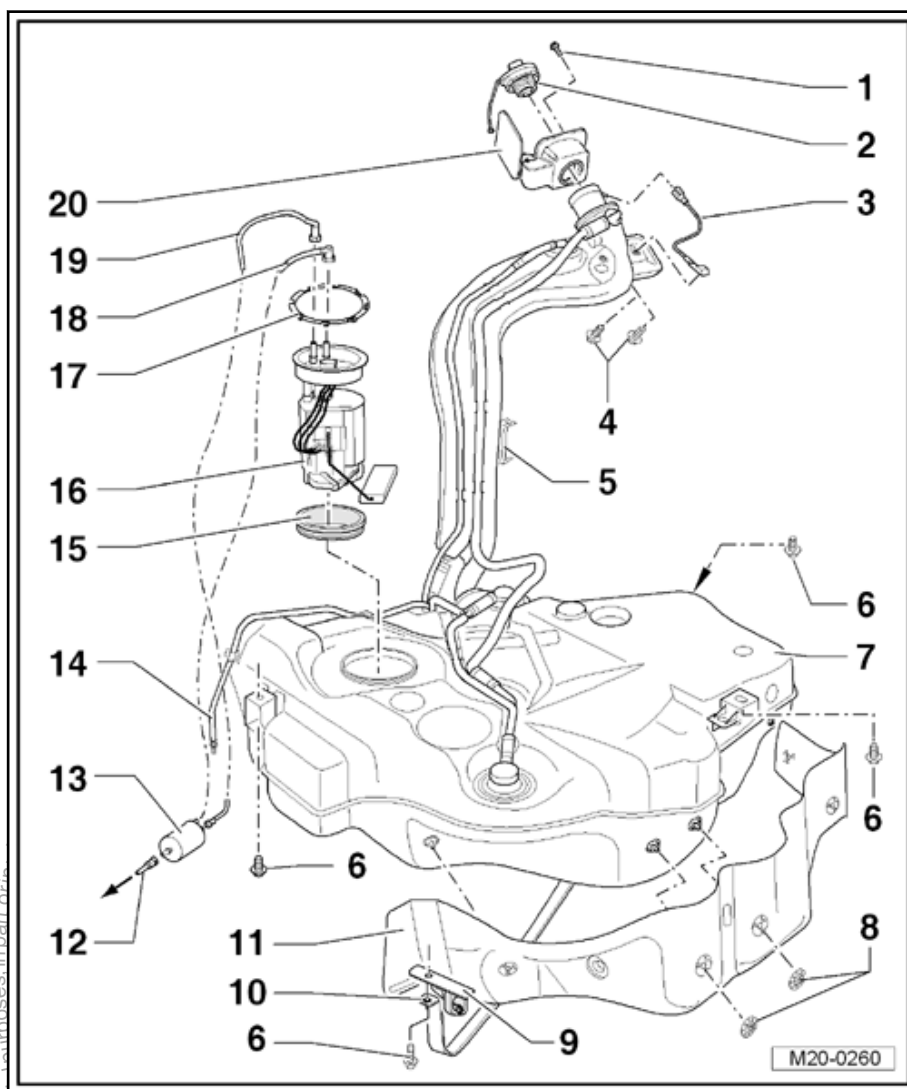
13 - Fuel Filter

- ☐ Installation position. Refer to ⇒ [Fig. "Fuel filter installation position", page 59](#).
- ☐ The arrow points in the flow direction

14 - Bleeder Line

- ☐ To the EVAP Canister
- ☐ Do not kink
- ☐ Attached to the side of the fuel tank
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to ⇒ ["4 Connector Couplings", page 52](#).
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Check for secure fit
- ☐ Pull on the connector coupling to check for secure fit.

15 - Seal





- ☐ Replace after removing
- ☐ Insert dry into the fuel tank opening
- ☐ Coat the inside of seal with fuel only before installing the fuel delivery unit.

16 - Fuel Delivery Unit

- ☐ Overview. Refer to ⇒ [“2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor”, page 30](#) .
- ☐ Removing and Installing. Refer to ⇒ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .
- ☐ With the Transfer Fuel Pump - G6-
- ☐ Transfer Fuel Pump - G6- , Checking. Refer to ⇒ [“8 Fuel Pump”, page 81](#) .
- ☐ With Fuel Level Sensor - G-
- ☐ Fuel Level Sensor - G- , Removing and Installing. Refer to ⇒ [“2.3.2 Fuel Level Sensor G , Removing and Installing, Hybrid”, page 47](#) .
- ☐ Clean the screen if there are debris

17 - Locking Ring

- ☐ Check for secure fit
- ☐ 110 Nm ± 5 Nm

18 - Fuel Supply Line

- ☐ Black
- ☐ Do not kink
- ☐ Attached to the side of the fuel tank
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to ⇒ [“4 Connector Couplings”, page 52](#) .
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Check for secure fit
- ☐ Pull on the connector coupling to check for secure fit.

19 - Return Line

- ☐ Blue
- ☐ Do not kink
- ☐ Attached to the side of the fuel tank
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to ⇒ [“4 Connector Couplings”, page 52](#) .
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Check for secure fit
- ☐ Pull on the connector coupling to check for secure fit.

20 - Fuel Filler Door Unit

- ☐ With rubber gasket
- ☐ Removing and installing. Refer to ⇒ Body Exterior; Rep. Gr. 55 ; Fuel Filler Door Unit; Fuel Filler Door Unit, Removing and Installing .

1.1.2 Overview - Fuel Tank, Vehicles with Fuel Filter in Fuel Delivery Unit Flange



1 - Cap

- ☐ Replace the seal if damaged.

2 - Fuel Filler Door Unit

- ☐ With rubber gasket
- ☐ Removing and installing. Refer to ⇒ Body Exterior; Rep. Gr. 55 ; Fuel Filler Door Unit; Fuel Filler Door Unit, Removing and Installing .

3 - Bolt

- ☐ 10 Nm

4 - Plugs

- ☐ Check for secure fit

5 - Fuel Supply Line

- ☐ Black
- ☐ Attached to the side of the fuel tank
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to ⇒ ["4 Connector Couplings", page 52](#) .
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Check for secure fit
- ☐ Pull on the connector coupling to check for secure fit.

6 - Locking Ring

- ☐ Check for secure fit
- ☐ 110 Nm ± 5 Nm

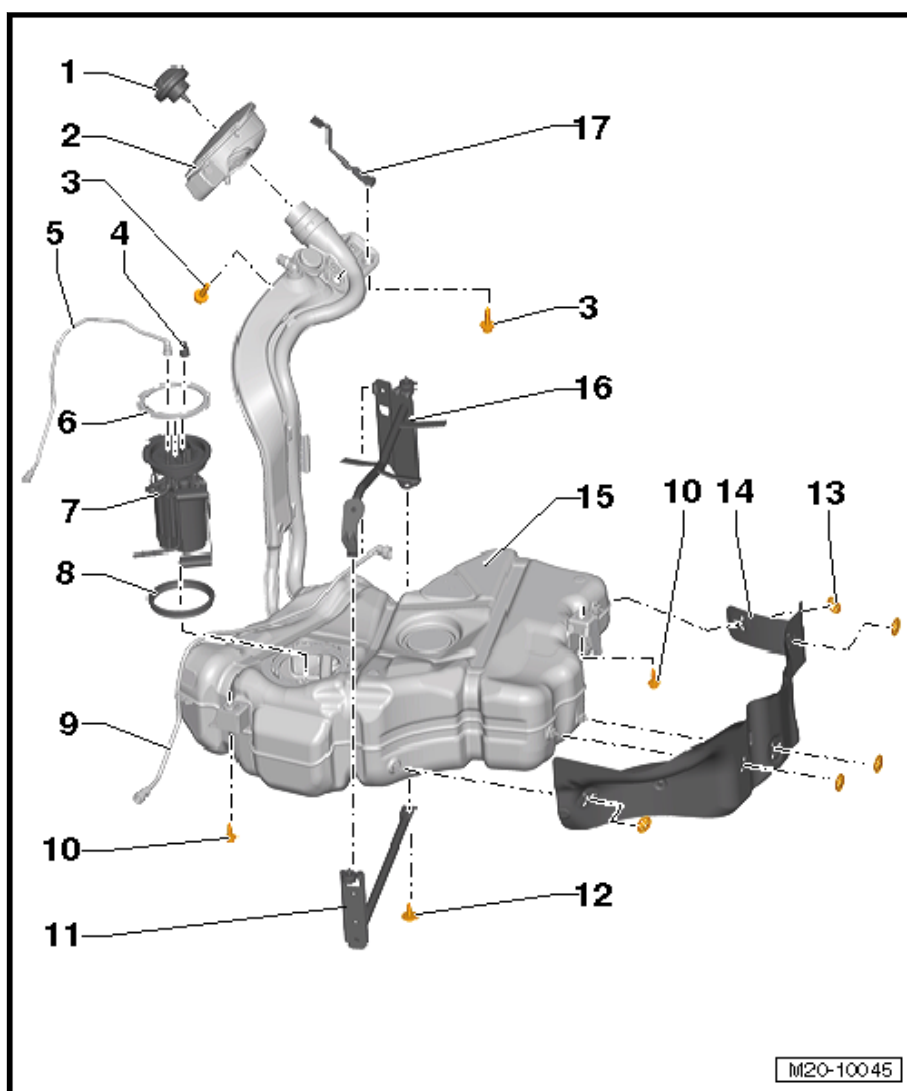
7 - Fuel Delivery Unit

- ☐ Overview. Refer to ⇒ ["2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor", page 30](#) .
- ☐ Removing and Installing. Refer to ⇒ ["2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing", page 36](#) .
- ☐ With the Transfer Fuel Pump - G6-
- ☐ Transfer Fuel Pump - G6- , Checking. Refer to ⇒ ["8 Fuel Pump", page 81](#) .
- ☐ With Fuel Level Sensor - G-
- ☐ Fuel Level Sensor - G- , Removing and Installing. Refer to ⇒ ["2.3.2 Fuel Level Sensor G , Removing and Installing, Hybrid", page 47](#) .
- ☐ Clean the screen if there are debris

8 - Seal

- ☐ Replace after removing
- ☐ Insert dry into the fuel tank opening
- ☐ Coat the inside of seal with fuel only before installing the fuel delivery unit.

9 - Bleeder Line



M20-10045



- ☐ To the EVAP Canister
- ☐ Attached to the side of the fuel tank
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to ➔ ["4 Connector Couplings", page 52](#) .
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Check for secure fit
- ☐ Pull on the connector coupling to check for secure fit.

10 - Bolt

- ☐ Replace after removing
- ☐ 23 Nm

11 - Mounting Strap

- ☐ Lower Section
- ☐ Only installed on hybrid vehicles
- ☐ Note the installation position

12 - Bolt

- ☐ Connects the upper and lower sections of the mounting strap
- ☐ Replace after removing
- ☐ 23 Nm

13 - Lock Washer

14 - Heat Shield

15 - Fuel Tank

- ☐ Removing and Installing. Refer to ➔ ["1.3 Fuel Tank, Removing and Installing", page 25](#) .

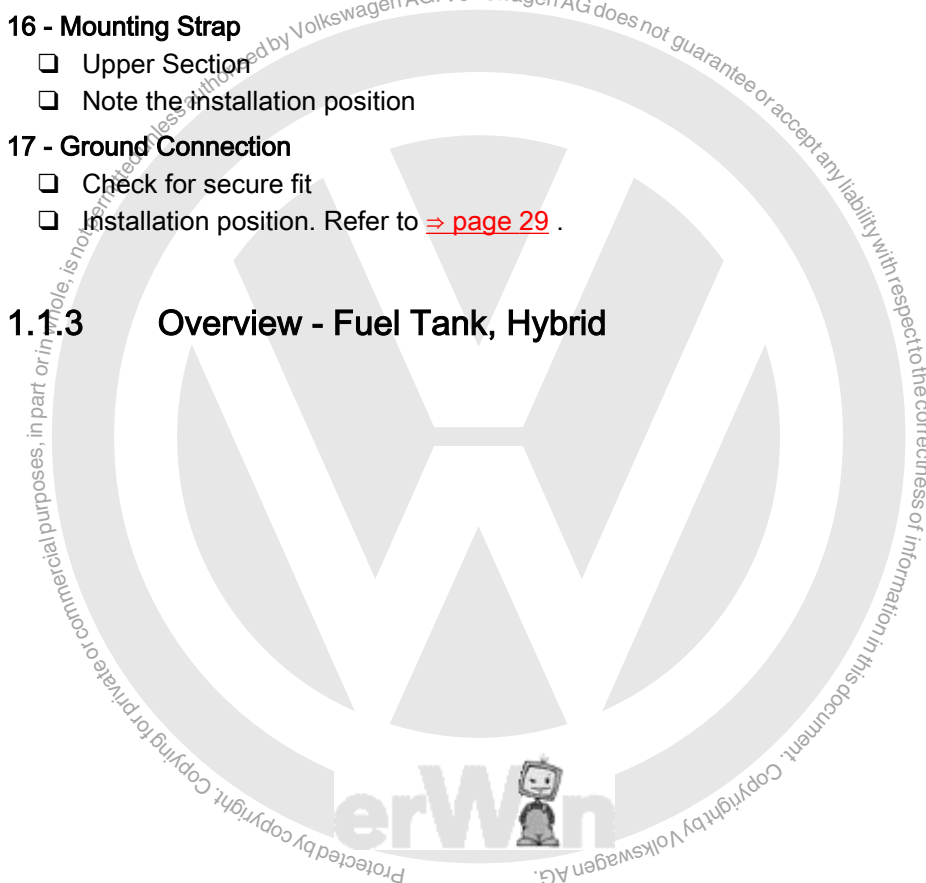
16 - Mounting Strap

- ☐ Upper Section
- ☐ Note the installation position

17 - Ground Connection

- ☐ Check for secure fit
- ☐ Installation position. Refer to ➔ [page 29](#) .

1.1.3 Overview - Fuel Tank, Hybrid





1 - Cap

- ☐ Replace the seal if damaged.

2 - Fuel Filler Door Unit

- ☐ With rubber gasket
- ☐ Removing and installing. Refer to ⇒ Body Exterior; Rep. Gr. 55 ; Fuel Filler Door Unit; Fuel Filler Door Unit, Removing and Installing .

3 - Bolt

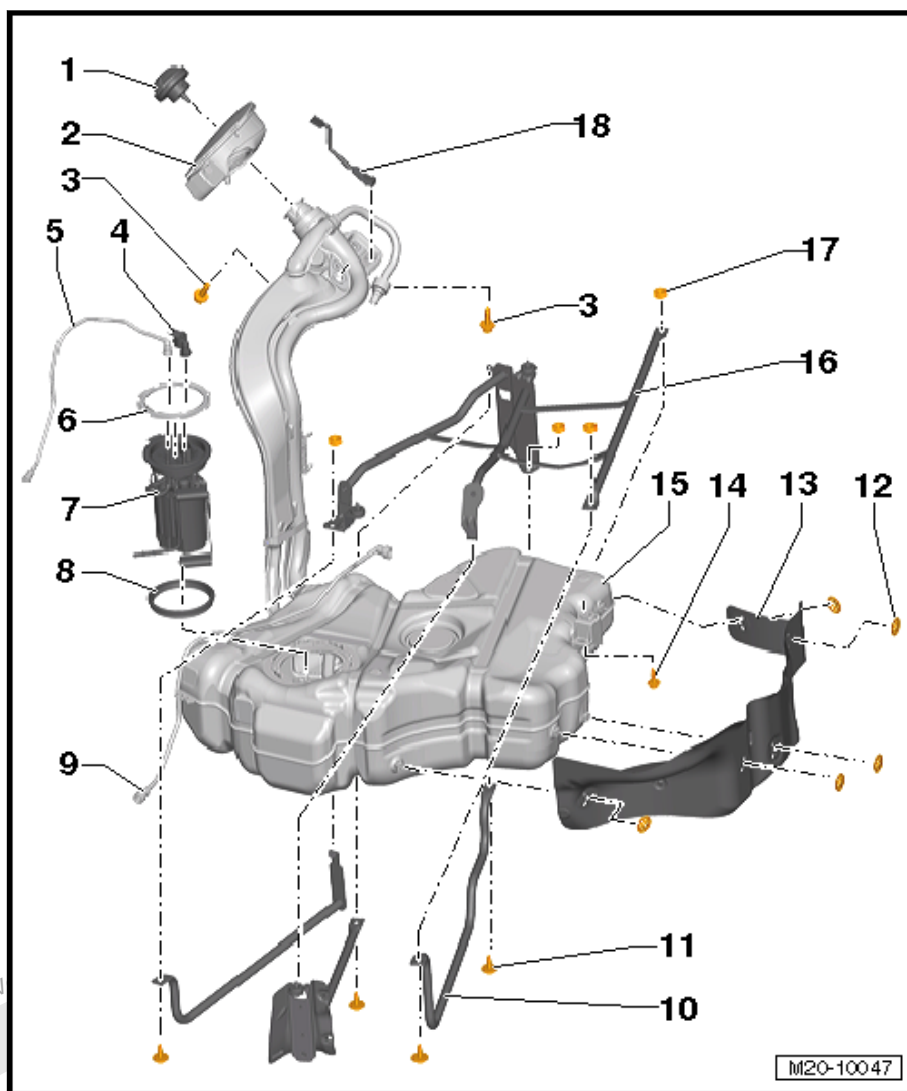
- ☐ 10 Nm

4 - EVAP Canister System Pressure Sensor - G804-

- ☐ Check for secure fit

5 - Fuel Supply Line

- ☐ Black
- ☐ Attached to the side of the fuel tank
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to ⇒ ["4 Connector Couplings", page 52](#) .
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Check for secure fit
- ☐ Pull on the connector coupling to check for secure fit.



6 - Locking Ring

- ☐ Check for secure fit
- ☐ 110 Nm ± 5 Nm

7 - Fuel Delivery Unit

- ☐ Overview. Refer to ⇒ ["2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor", page 30](#) .
- ☐ Removing and Installing. Refer to ⇒ ["2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing", page 36](#) .
- ☐ With the Transfer Fuel Pump - G6-
- ☐ Transfer Fuel Pump - G6- , Checking. Refer to ⇒ ["8 Fuel Pump", page 81](#) .
- ☐ With Fuel Level Sensor - G-
- ☐ Fuel Level Sensor - G- , Removing and Installing. Refer to ⇒ ["2.3.2 Fuel Level Sensor G , Removing and Installing, Hybrid", page 47](#) .
- ☐ Clean the screen if there are debris

8 - Seal

- ☐ Replace after removing
- ☐ Insert dry into the fuel tank opening
- ☐ Coat the inside of seal with fuel only before installing the fuel delivery unit.

9 - Bleeder Line



- ☐ To the EVAP Canister
- ☐ Attached to the side of the fuel tank
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to ➔ [“4 Connector Couplings”, page 52](#) .
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Check for secure fit
- ☐ Pull on the connector coupling to check for secure fit.

10 - Mounting Strap

- ☐ Lower Section
- ☐ Note the installation position

11 - Bolt

- ☐ Replace after removing
- ☐ 23 Nm

12 - Lock Washer

13 - Heat Shield

14 - Bolt

- ☐ Replace after removing
- ☐ 23 Nm

15 - Fuel Tank

- ☐ Removing and Installing. Refer to ➔ [“1.3 Fuel Tank, Removing and Installing”, page 25](#) .

16 - Mounting Strap

- ☐ Upper Section
- ☐ Note the installation position

17 - Nuts

- ☐ Connects the upper and lower sections
- ☐ Replace after removing
- ☐ 23 Nm

18 - Ground Connection

- ☐ Check for secure fit
- ☐ Installation position. Refer to ➔ [page 29](#) .

1.2 Fuel Tank, Draining

➔ [“1.2.1 Fuel Tank, Draining with Fuel Pump Installed”, page 14](#)

➔ [“1.2.2 Fuel Tank, Draining When More than 3/4 Full”, page 19](#)

➔ [“1.2.3 Fuel Tank, Draining When Less Than 3/4 Full”, page 21](#)

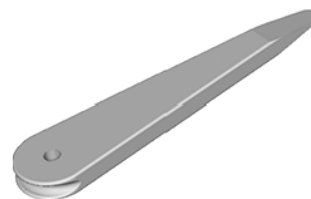
1.2.1 Fuel Tank, Draining with Fuel Pump Installed

Special tools and workshop equipment required



◆ Trim Removal Wedge - 3409-

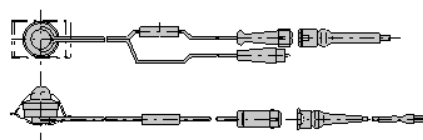
3409



W00-11118

◆ Remote Control1348 - V.A.G 1348/3A-

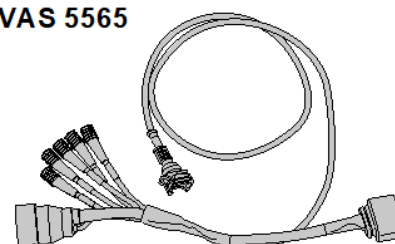
V.A.G 1348/3A



W00-0688

◆ Vehicle Diagnostic Tester - Test Adapter - 5 Pin - VAS 5565-

VAS 5565



W00-10599

◆ Connector Test Set - V.A.G 1594D-

V.A.G 1594 C

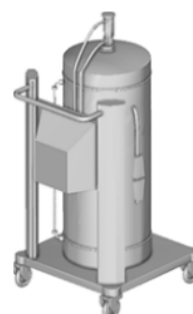


W00-11191



◆ Fuel Extractor - VAS 5190A-

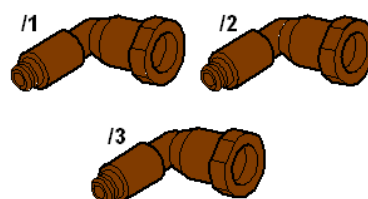
VAS 5190



W00-11291

◆ Fuel Extraction - Adapter 3 - VAS 5190/3-

VAS 5190/1-3



W00-11248

◆ Fuel Extraction Unit - VAS 5190 A- (not illustrated) for E 85 - fuel.



Note

Use only the Fuel Extractor Unit - VAS 5190 A- when extracting E 85 - fuel.



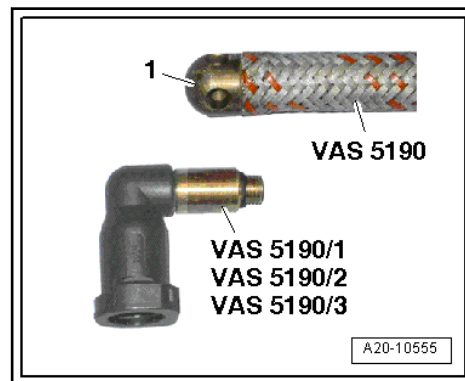
Note

If the Fuel Extraction Unit - VAS 5190- has a suction hose with a mounted tip, then replace this with one that has a tip which screws on.



Note

- ◆ The connector couplings must »audibly« engage when locking.
- ◆ Note the color coding when installing the connector coupling ⇒ [page 52](#) !
- ◆ Pull on the connector coupling to check for secure fit.
- ◆ Disconnect the connector couplings. Refer to ⇒ ["4 Connector Couplings", page 52](#) .



Procedure

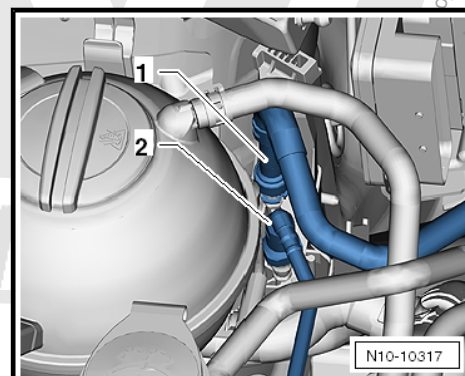
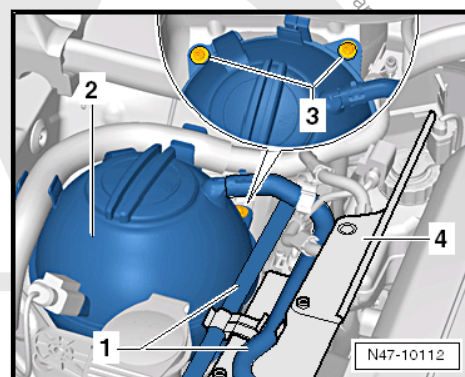
- Pay attention to the safety precautions. Refer to ⇒ ["1.1 Safety Precautions when Working on Fuel Supply System", page 1](#) .
- Follow the guidelines for clean working conditions. Refer to ⇒ ["3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System", page 6](#) .
- Free up the wiring harness on the coolant expansion tank.
- Release and remove the connector on the coolant expansion tank.
- Remove the bolts -3- and then remove the coolant expansion tank -2-.
- Move the coolant expansion tank -2- to the side.
- Remove the supply line (metal coupling) -1-. Disconnect the connector couplings. Refer to ⇒ ["4 Connector Couplings", page 52](#) .



Caution

The fuel system is under pressure.
Risk of injury from fuel spraying out.

- Wear protective eyewear.
- Wear safety gloves.
- Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.

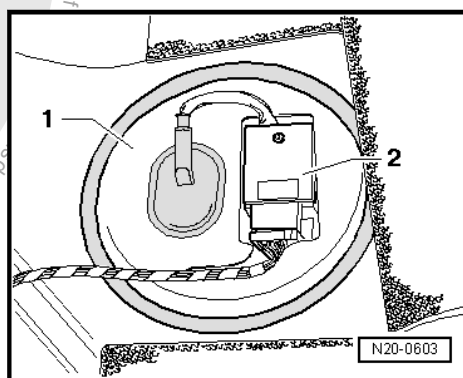
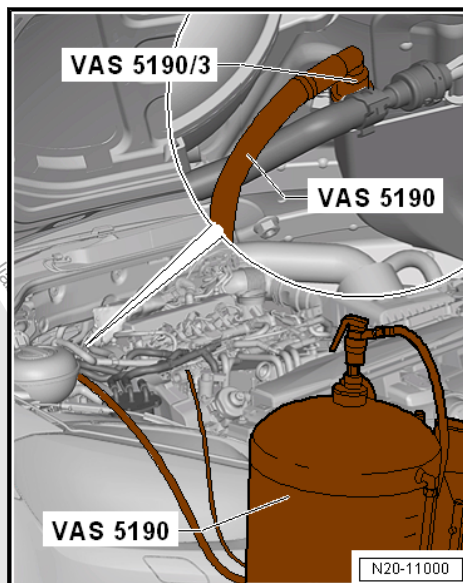


- Collect leaking fuel with a cloth.

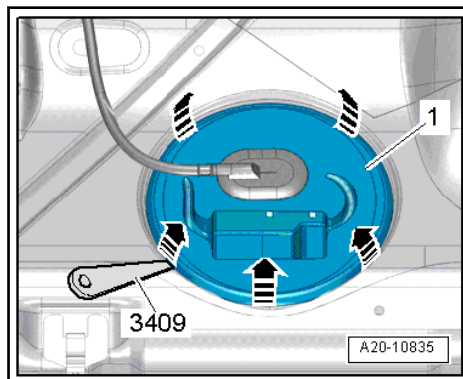


- Connect the Fuel Extraction Unit - VAS 5190- and Fuel Extraction - Adapter 3 - VAS 5190/3- to the fuel supply line.
- Attach the ground wire of the Fuel Extractor Unit to a bare area on the body.
- Remove the bench seat or fold it up. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Bench Seat / Single Seats, Removing and Installing .
- Remove the carpet and fold it upward.

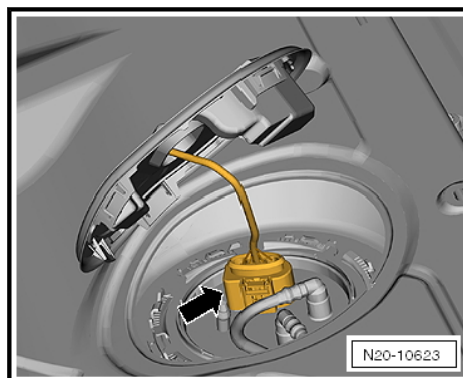
If equipped, remove the Fuel Pump Control Module - J538-2- from the cover -1-.



- Unclip the sealing flange cover -1- at the tabs -arrows- using the Trim Removal Wedge - 3409- .



- Disconnect the connector -arrow-.





- Attach the Vehicle Diagnostic Tester - Test Adapter - 5 Pin - VAS 5565- to the connector and to the fuel delivery unit.
- Connect the Injection Rate Comparison Meter Kit - Remote Control - V.A.G 1348/3A- to the Vehicle Diagnostic Tester - Test Adapter - 5 Pin - VAS 5565- and battery positive (+).



Note

This step allows the fuel pump to run when the engine is not running.



Note

- ◆ *There is a risk of destroying the fuel pump if it runs dry.*
- ◆ *Never let the fuel pump run »dry«.*

- Open the fuel filler door unit -2-.
- Clean the area around the fuel filler neck.
- Remove the cap -1-.
- Open the shut-off valve on the Fuel Extractor - VAS 5190A- and press the Injection Rate Comparison Meter Kit - Remote Cable - V.A.G 1348/3A- until the fuel tank is empty.

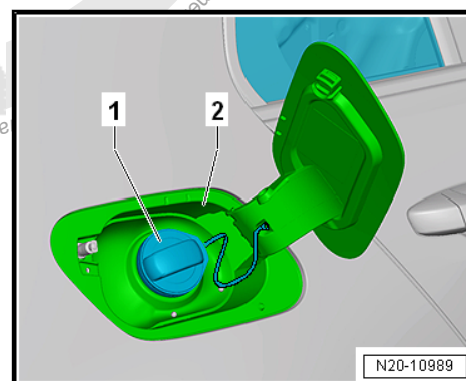
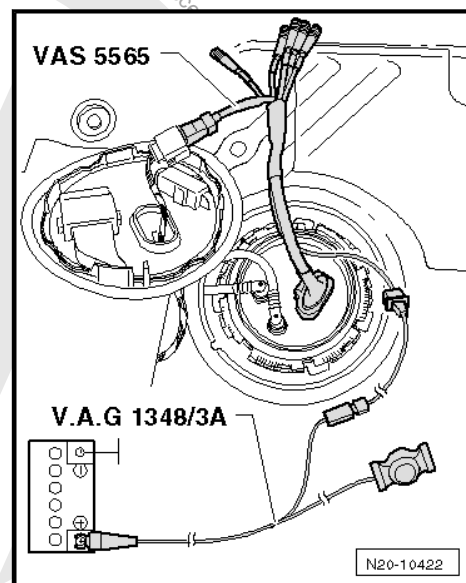


WARNING

Risk of the fuel tank exploding when starting the fuel pump.

Severe injuries and burns are possible.

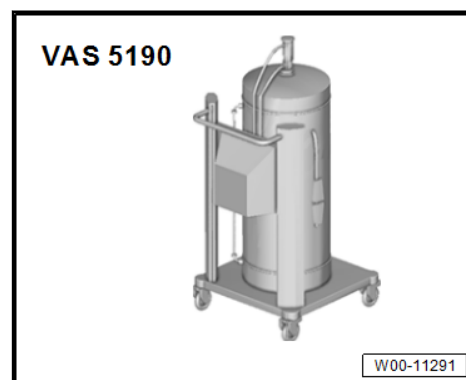
- *After installing a new or completely empty fuel tank, immediately fill with at least 5 liters of fuel.*



1.2.2 Fuel Tank, Draining When More than $\frac{3}{4}$ Full

Special tools and workshop equipment required

- ◆ Fuel Extractor - VAS 5190A-



- ◆ Fuel Extraction Unit - VAS 5190 A- (not illustrated) for E 85 - fuel.



Note

Use only the Fuel Extractor Unit - VAS 5190 A- when extracting E 85 - fuel.

- Pay attention to the safety precautions. Refer to ⇒ [“1 Safety Precautions”, page 1](#) .
- Follow the guidelines for clean working conditions. Refer to ⇒ [“3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System”, page 6](#) .
- Mark the hose -arrow- at the distance -a- from the end of the suction hose on the Fuel Extraction Unit - VAS 5190- .
- Use insulating tape.
- The distance -a- is 990 mm.

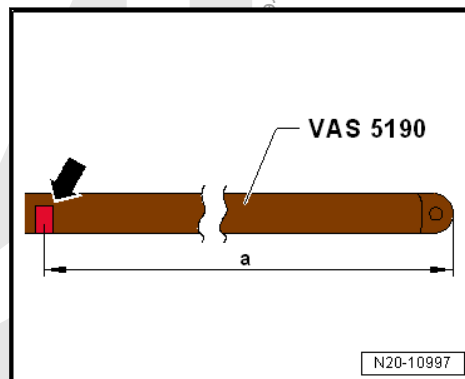


Caution

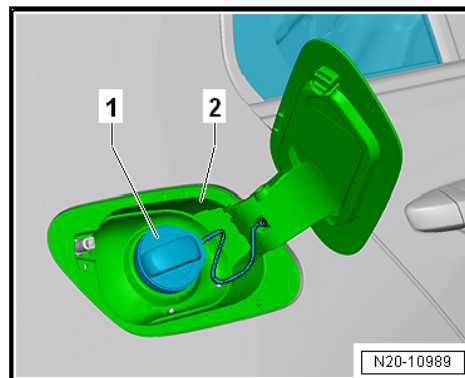
The fuel system is under pressure.

Risk of injury from fuel spraying out.

- **Wear protective eyewear.**
- **Wear safety gloves.**
- **Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.**



- Open the fuel filler door unit -2-.
- Clean the area around the fuel filler neck.
- Remove the cap -1-.
- Attach the ground wire from the Fuel Extractor to a bare area on the body.

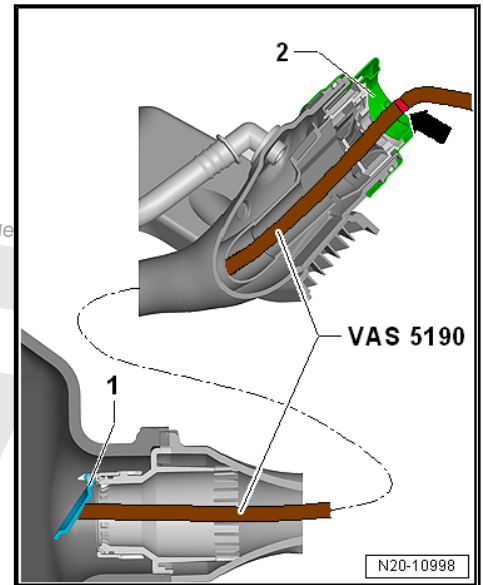




- Slide the suction hose from the Fuel Extractor into the fuel tank until the previously made mark -arrow- meets the filler neck -2-.
- Drain the fuel tank as much as possible through the filler neck.

i Note

- ◆ A valve -1- is located in the fuel tank on the lower end of the filler neck. It must not be damaged by the suction hose. Only slide the hose in as far as the mark that was made earlier -arrow-.
 - ◆ Do not use force to remove the suction hose if it gets stuck on the check valve.
 - ◆ In this case, remove the fuel delivery unit and manually hold the check valve open. When doing this, make sure the arm does not come in contact with the fuel.
- Carefully remove the suction hose.



i Note

- ◆ There is a risk of destroying the fuel pump if it runs dry.
- ◆ Never let the fuel pump run »dry«.

i Note

- ◆ When no more fuel can be extracted, the fuel tank is only emptied enough so that the sensor flange can be opened safely.
- ◆ When working on the fuel delivery unit or on the Fuel Gauge Sensor , proceed as follows. Refer to ⇒ ["1.2.3 Fuel Tank, Draining When Less Than 3/4 Full", page 21](#) .



WARNING

Risk of the fuel tank exploding when starting the fuel pump.

Severe injuries and burns are possible.

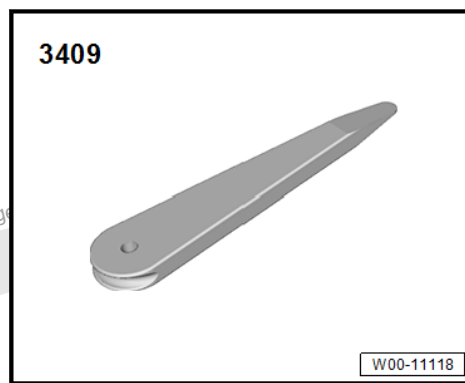
- ***After installing a new or completely empty fuel tank, immediately fill with at least 5 liters of fuel.***

1.2.3 Fuel Tank, Draining When Less Than $\frac{3}{4}$ Full

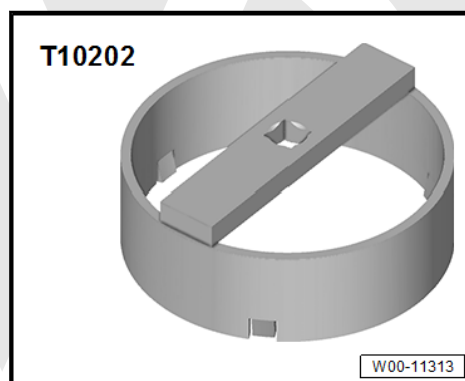
Special tools and workshop equipment required



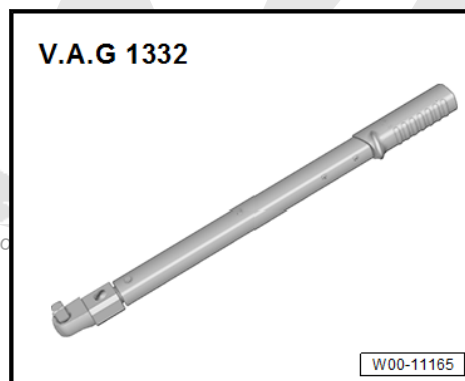
◆ Trim Removal Wedge - 3409-



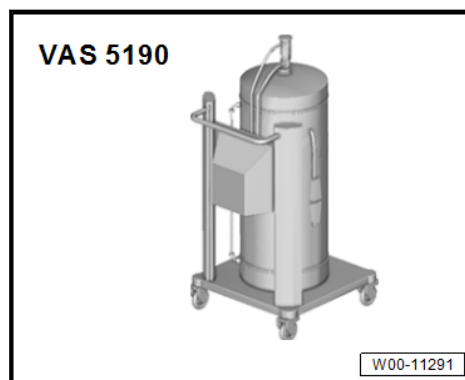
◆ Wrench - Fuel Sending Unit - T10202-



◆ Torque Wrench, 40-200Nm - V.A.G 1332A-



◆ Fuel Extractor - VAS 5190A-



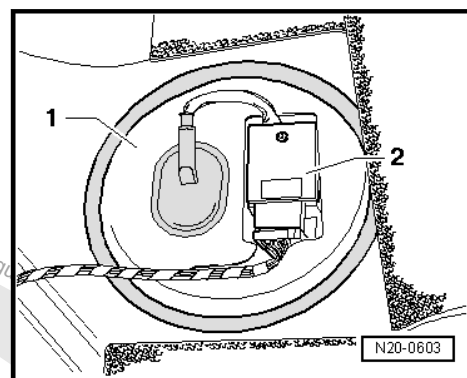
Note

Use only the Fuel Extractor Unit - VAS 5190 A- when extracting E 85 - fuel.

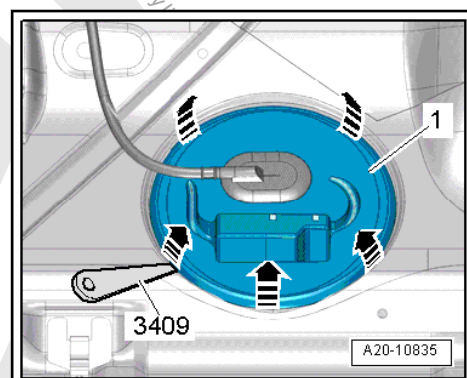


Note

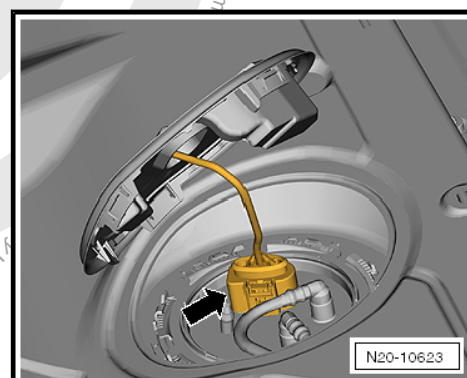
- ◆ Pay attention to the safety precautions. Refer to ➤ ["1 Safety Precautions", page 1](#).
- ◆ Follow the guidelines for clean working conditions. Refer to ➤ ["3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System", page 6](#).
- Remove the bench seat. Refer to ➤ Body Interior; Rep. Gr. 72 ; Rear Seats; Bench Seat / Single Seats, Removing and Installing .
- If equipped, remove the Fuel Pump Control Module - J538-2- from the cover -1-.



- Unclip the sealing flange cover -1- at the tabs -arrows- using the Trim Removal Wedge - 3409- .



- Release and disconnect the connector -arrow-.





- Remove the fuel line -1- from the sealing flange. Disconnect the connector couplings. Refer to ➔ [“4 Connector Couplings”, page 52](#) .

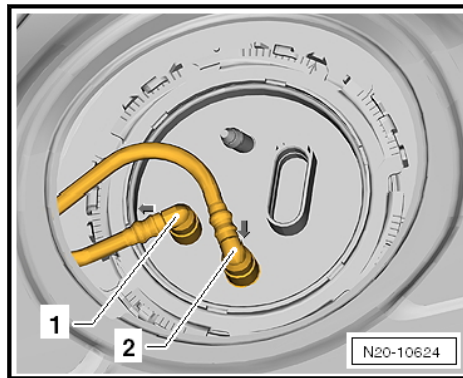


Caution

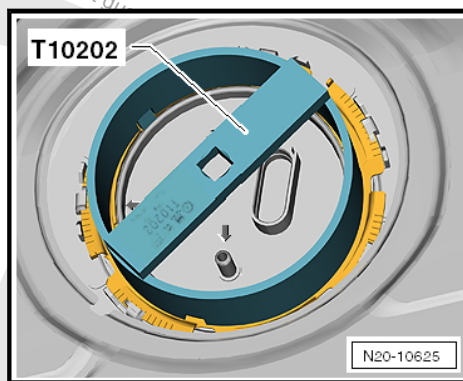
The fuel system is under pressure.

Risk of injury from fuel spraying out.

- *Wear protective eyewear.*
- *Wear safety gloves.*
- *Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.*



- If equipped, remove the fuel line -2- to the Metering Pump - V54- for the parking heater on the sealing flange.
- Loosen the lower hose clamp to do this.
- Open the locking ring using the Wrench - Fuel Sending Unit - T10202- .





- Carefully lift the fuel delivery unit flange -3-.
- Remove the seal -1- and slightly lift the fuel delivery unit flange again carefully.
- Attach the ground wire of the Fuel Extractor Unit to a bare area on the body.
- Insert the suction hose for the Fuel Extraction Unit - VAS 5190- as deep as possible into the fuel tank.
- Extract the fuel using the Fuel Extractor Unit - VAS 5190- .

If the fuel tank was just drained, then reinstall the fuel delivery unit. Refer to ➤ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .

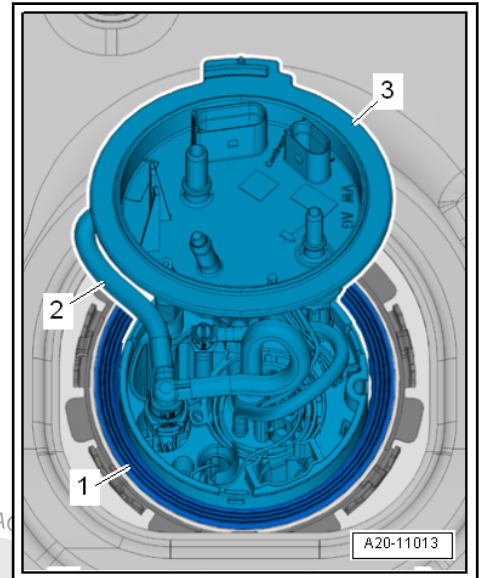


WARNING

Risk of the fuel tank exploding when starting the fuel pump.

Severe injuries and burns are possible.

- ***After installing a new or completely empty fuel tank, immediately fill with at least 5 liters of fuel.***



Tightening Specifications

- ◆ Locking Ring. Refer to ➤ [“1.1 Overview - Fuel Tank”, page 8](#) .
- ◆ Refer to ➤ Heating, Ventilation and Air Conditioning; Rep. Gr. 82 ; Fuel Supply; Component Location Overview - Fuel Supply .

1.3 Fuel Tank, Removing and Installing

Special tools and workshop equipment required

- ◆ Torque Wrench, 6-50Nm - VAG 1331A-

V.A.G 1331



W00-11166

- ◆ Engine and Gearbox Jack

V.A.G 1383 A

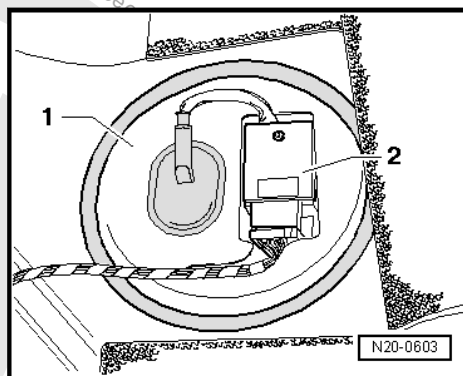


W00-11135

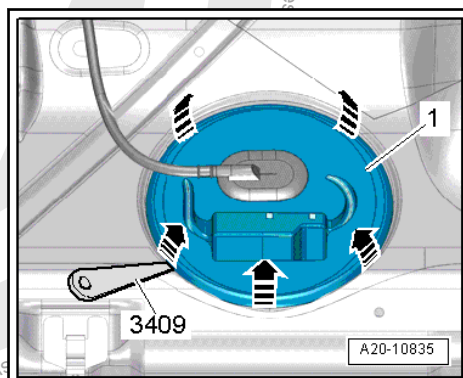


Removing

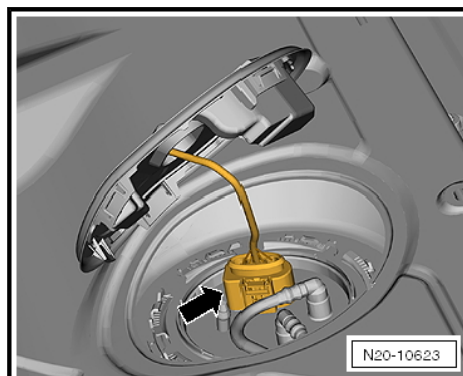
- Pay attention to the safety precautions. Refer to ⇒ [“1 Safety Precautions”, page 1](#) .
- Follow the guidelines for clean working conditions. Refer to ⇒ [“3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System”, page 6](#) .
- Check if a coded radio is installed. If this is the case, get the anti-theft code.
- Disconnect the battery ground cable. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Drain the fuel tank. Refer to ⇒ [“1.2 Fuel Tank, Draining”, page 14](#) .
- Remove the fuel filler door unit bolt and the fuel filler door unit. Refer to ⇒ Body Exterior; Rep. Gr. 55 ; Fuel Filler Door Unit; Fuel Filler Door Unit, Removing and Installing .
- Remove the bench seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Bench Seat / Single Seats, Removing and Installing .
- If equipped, remove the cover -1- with the Fuel Pump Control Module - J538- -2- from the fuel delivery unit.



- Unclip the cover -1- at the tabs -arrows- using the Trim Removal Wedge -3409- .



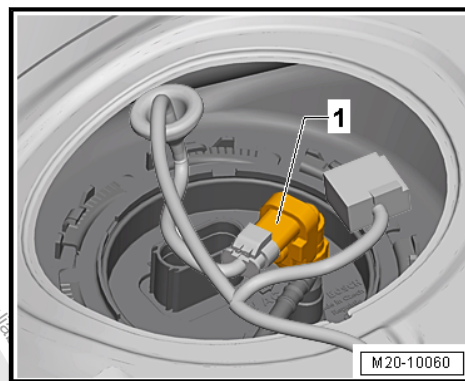
- Disconnect the connector -arrow-.





Vehicles with EVAP Canister System Pressure Sensor - G804- .

- Release and disconnect the connector from the EVAP Canister System Pressure Sensor - G804- -1-.



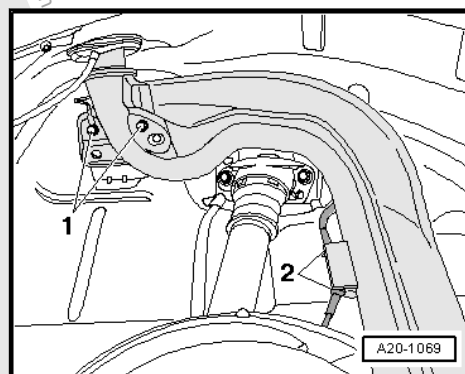
Continuation for all vehicles

Remove the right rear wheel.

Remove the right rear wheel housing liner. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Overview - Rear Wheel Housing Liner .

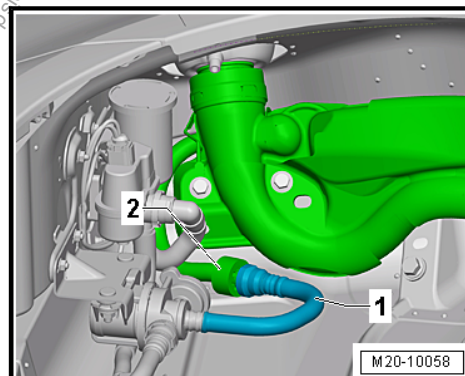
Remove the bolts -1- from the filler neck on the body.

Unclip the wire on the filler neck -2-.



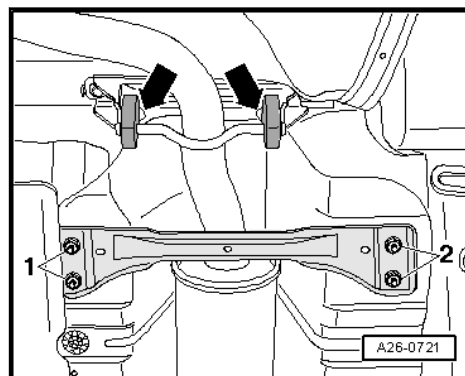
Hybrid Vehicles

- Release and disconnect the vent line -1- on the filler tube -2-. Disconnect the connector couplings. Refer to ➤ [“4 Connector Couplings”, page 52](#) .



Continuation for all vehicles

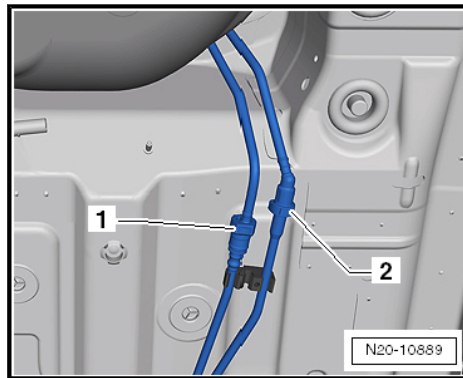
- Remove the nuts -1- and -2- and the rear underbody cross-member.
- Remove the center muffler and rear muffler. Refer to ➤ Rep. Gr. 26 ; Exhaust Pipes/Muffler; Muffler, Removing and Installing .





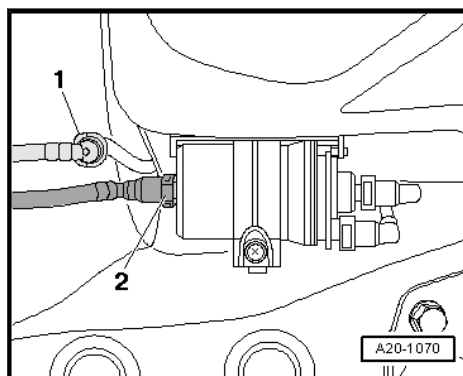
Vehicles without filter on the underbody:

- Disconnect the black supply line -1- and the white bleed line -2- from the connection point. Disconnect the connector couplings. Refer to ➤ [“4 Connector Couplings”, page 52](#) .



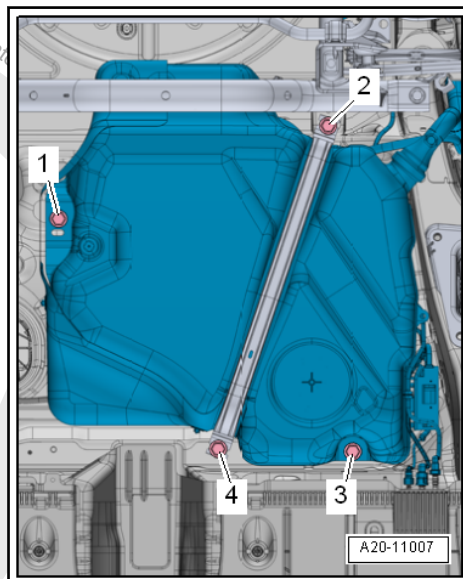
Vehicles with filter on the underbody:

- Disconnect the vent line -1- (white) and fuel line -2- (black) at the connecting point. Disconnect the connector couplings. Refer to ➤ [“4 Connector Couplings”, page 52](#) .

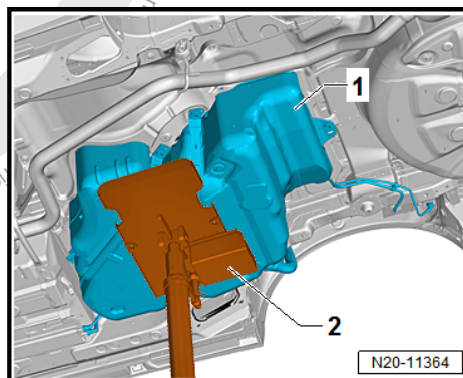


Continuation for all vehicles

- Remove the bolt -4-.
- Remove the bracket for the exhaust system.
- Remove the bolt -2- and remove the mounting strap.



- Place the Engine and Gearbox Jack -2- underneath and support the fuel tank -1-.





- Remove the bolts -1- and -3-.



Note

- ◆ For clarity, the fuel tank is shown without the Engine and Gearbox Jack .
- ◆ A second technician is required to remove the fuel tank.

- Lower the fuel tank and remove it from the body.

Installing

Install in reverse order of removal. Note the following:

- Guide the filler neck between the rear axle and the body.
- If equipped, make sure the Metering Pump - V54- is seated securely on the bracket.
- ◆ Make sure to guide the fuel filler neck correctly into the opening in the body.
- ◆ Make sure the vent and fuel lines are routed without kinks.
- ◆ Make sure the supply, return and breather lines are still clipped to the fuel tank after the fuel tank has been installed.
- ◆ Position the fuel tank together with the mounting strap on the underbody using the Engine and Gearbox Jack .
- ◆ Make sure the line connections are secure.
- ◆ Check for secure fit by pulling on it.

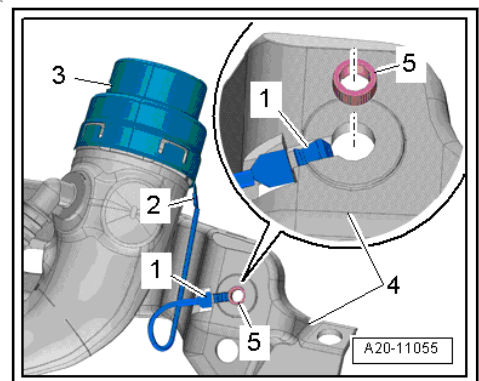
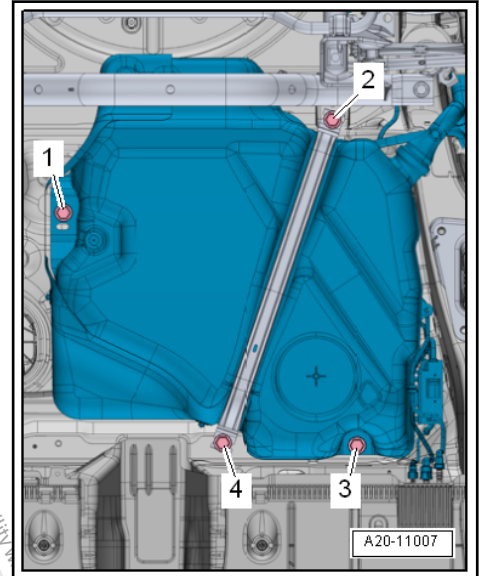
Check the ground cable for traces of oxidation on the connectors. Remove any oxidation if necessary.

Checking the installation position of the ground connection

- The connector -2- must be securely attached to the metal ring -3-.
- The contact -1- must be engaged in the fuel tank -4- and secured with the spacer -5-.
- Check the metal ring connection on the fuel filler neck to a bare area on the body with an ohmmeter.
- Specified value is approximately 0 Ohm.
- If the specified values is incorrect, then there is a risk of explosion due to electrostatic discharge.

Tightening Specifications

- ◆ Refer to ⇒ [“1.1 Overview - Fuel Tank”, page 8](#)
- ◆ Refer to ⇒ Rep. Gr. 26 ; Exhaust Pipes/Mufflers; Overview - Mufflers .
- ◆ Refer to ⇒ Body Exterior; Rep. Gr. 55 ; Fuel Filler Door Unit; Fuel Filler Door Unit, Removing and Installing .





2 Fuel Delivery Unit/Fuel Level Sensor

⇒ [“2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor”, page 30](#)

⇒ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#)

⇒ [“2.3 Fuel Level Sensor G , Removing and Installing”, page 46](#)

2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor

⇒ [“2.1.1 Overview - Fuel Delivery Unit, Vehicles with Externally Installed Fuel Filter”, page 30](#)

⇒ [“2.1.2 Overview - Fuel Delivery Unit, Vehicles with Fuel Filter in Fuel Delivery Unit Flange”, page 32](#)

⇒ [“2.1.3 Overview - Fuel Delivery Unit, Hybrid”, page 34](#)

2.1.1 Overview - Fuel Delivery Unit, Vehicles with Externally Installed Fuel Filter



Note

- ◆ *Hose connections are secured with either spring or hose clamps.*
- ◆ *Replace the locking clamps with spring clamps.*
- ◆ *Fuel hoses at engine must only be secured with spring-type clips. The use of clamps or screw-type clamps is not permitted.*
- ◆ *The Hose Clip Pliers - VAS 6340- are recommended for installing spring clamps.*



1 - Locking Ring

- ☐ Check for secure fit
- ☐ 110 Nm

2 - Fuel Supply Line

- ☐ Black
- ☐ Do not kink
- ☐ Attached to the side of the fuel tank
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to ⇒ ["4 Connector Couplings", page 52](#)
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Check for secure fit
- ☐ Pull on the connector coupling to check for secure fit.

3 - Fuel Return Line

- ☐ Blue
- ☐ Attached to the side of the fuel tank
- ☐ Do not kink
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to ⇒ ["4 Connector Couplings", page 52](#)
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Check for secure fit
- ☐ Pull on the connector coupling to check for secure fit.

4 - Flange

- ☐ For the fuel delivery unit

5 - Fuel Level Sensor - G-

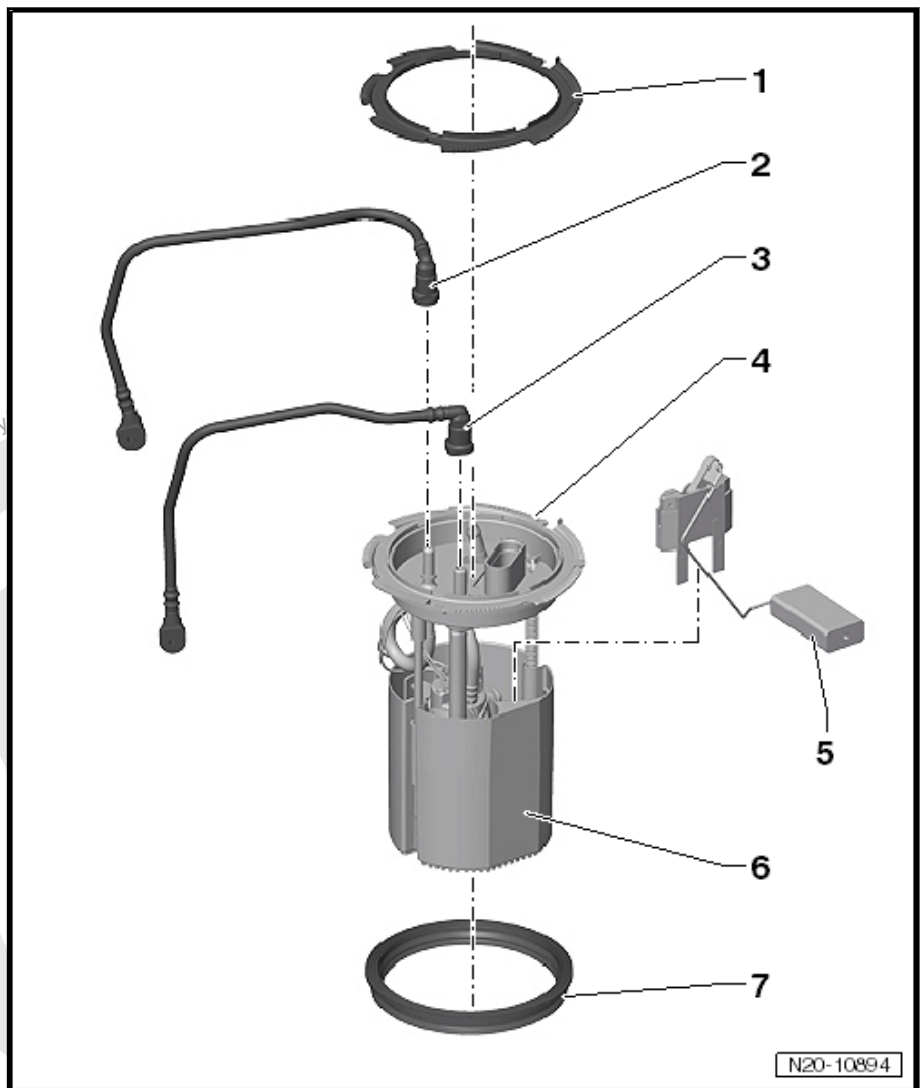
- ☐ Removing and Installing. Refer to ⇒ ["2.3.2 Fuel Level Sensor G , Removing and Installing, Hybrid", page 47](#) .

6 - Fuel Delivery Unit

- ☐ Removing and Installing. Refer to ⇒ ["2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing", page 36](#) .
- ☐ With the Transfer Fuel Pump - G6-
- ☐ Transfer Fuel Pump - G6- , Checking. Refer to ⇒ ["8 Fuel Pump", page 81](#) .
- ☐ With Fuel Level Sensor - G-
- ☐ Fuel Level Sensor - G- , Removing and Installing. Refer to ⇒ ["2.3.2 Fuel Level Sensor G , Removing and Installing, Hybrid", page 47](#) .

7 - Seal

- ☐ Replace after removing





- ☐ Insert dry into the fuel tank opening
- ☐ Coat with fuel only when installing the flange

2.1.2 Overview - Fuel Delivery Unit, Vehicles with Fuel Filter in Fuel Delivery Unit Flange



Note

- ◆ *Hose connections are secured with either spring or hose clamps.*
- ◆ *Replace the locking clamps with spring clamps.*
- ◆ *Fuel hoses at engine must only be secured with spring-type clips. The use of clamps or screw-type clamps is not permitted.*
- ◆ *The Hose Clip Pliers - VAS 6340- are recommended for installing spring clamps.*

1 - Plugs

- ☐ Check for secure fit

2 - Fuel Supply Line

- ☐ Black
- ☐ Attached to the side of the fuel tank
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to ⇒ ["4 Connector Couplings", page 52](#) .
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Check for secure fit
- ☐ Pull on the connector coupling to check for secure fit.

3 - Locking Ring

- ☐ Check for secure fit
- ☐ 110 Nm

4 - Flange

- ☐ For the fuel delivery unit

5 - Fuel Level Sensor - G-

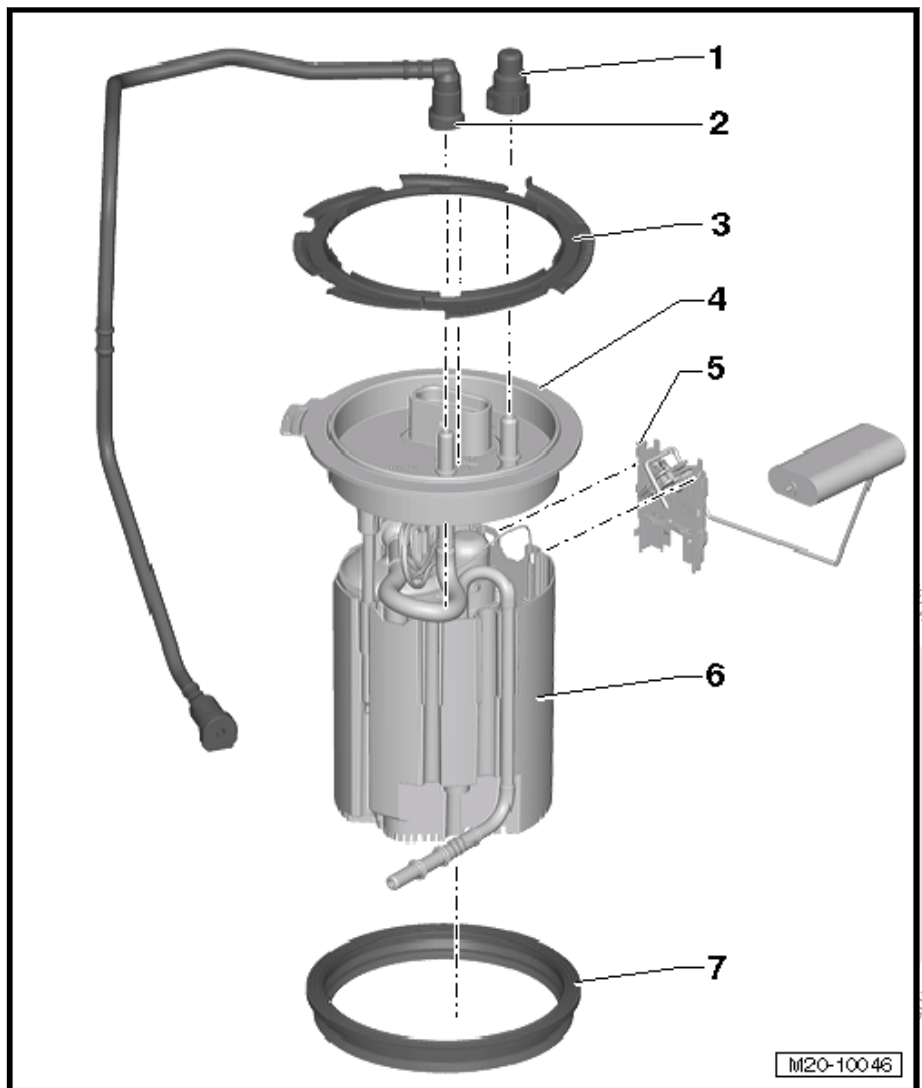
- ☐ Removing and Installing. Refer to ⇒ ["2.3.2 Fuel Level Sensor G , Removing and Installing, Hybrid", page 47](#) .

6 - Fuel Delivery Unit

- ☐ Removing and Installing. Refer to ⇒ ["2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing", page 36](#) .
- ☐ With the Transfer Fuel Pump - G6-
- ☐ Transfer Fuel Pump - G6- , Checking. Refer to ⇒ ["8 Fuel Pump", page 81](#) .
- ☐ With Fuel Level Sensor - G-
- ☐ Fuel Level Sensor - G- , Removing and Installing. Refer to ⇒ ["2.3.2 Fuel Level Sensor G , Removing and Installing, Hybrid", page 47](#) .
- ☐ With integrated fuel filter

7 - Seal

- ☐ Replace after removing
- ☐ Insert dry into the fuel tank opening
- ☐ Coat with fuel only when installing the flange





2.1.3 Overview - Fuel Delivery Unit, Hybrid



Note

- ◆ *Hose connections are secured with either spring or hose clamps.*
- ◆ *Replace the locking clamps with spring clamps.*
- ◆ *Fuel hoses at engine must only be secured with spring-type clips. The use of clamps or screw-type clamps is not permitted.*
- ◆ *The Hose Clip Pliers - VAS 6340- are recommended for installing spring clamps.*





1 - EVAP Canister System Pressure Sensor - G804-

- ☐ Make sure the connector and pressure sensor are seated securely

2 - Fuel Supply Line

- ☐ Black
- ☐ Attached to the side of the fuel tank
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to [⇒ "4 Connector Couplings", page 52](#) .
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Check for secure fit
- ☐ Pull on the connector coupling to check for secure fit.

3 - Locking Ring

- ☐ Check for secure fit
- ☐ 110 Nm

4 - Flange

- ☐ For the fuel delivery unit

5 - Fuel Level Sensor - G-

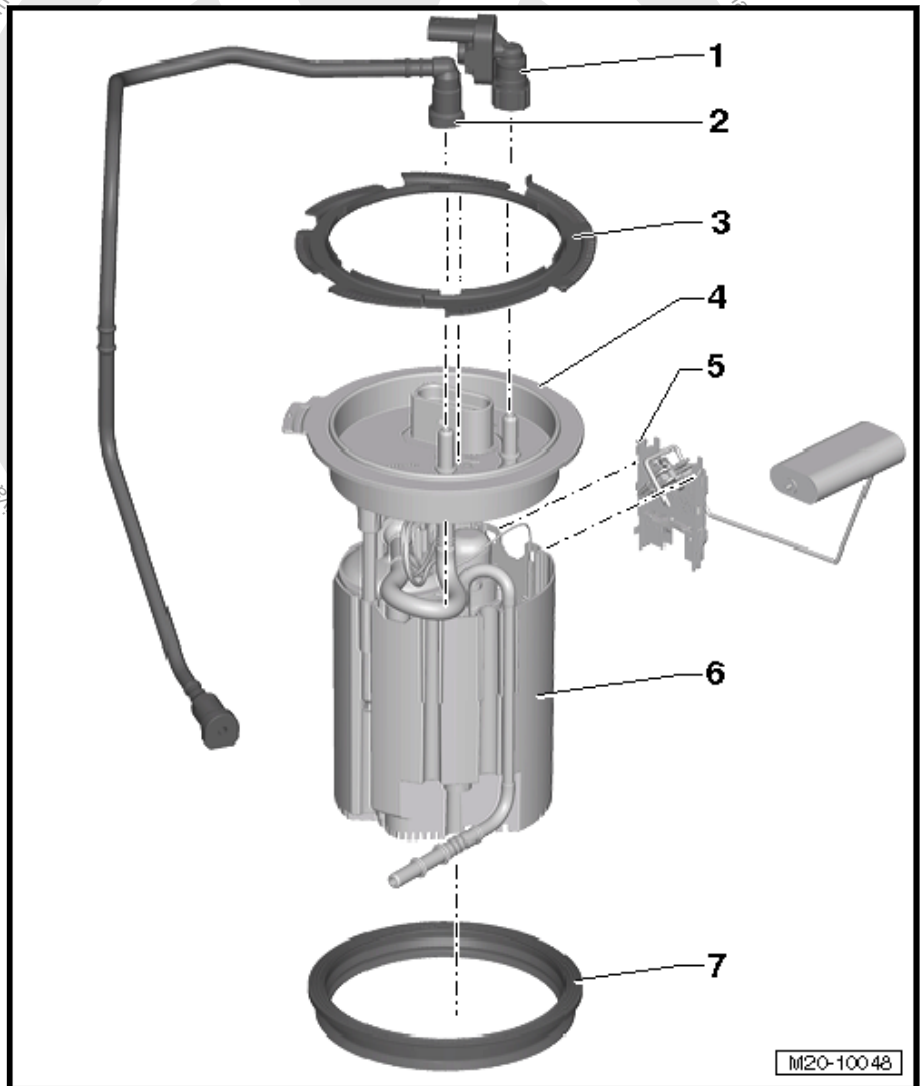
- ☐ Removing and Installing. Refer to [⇒ "2.3.2 Fuel Level Sensor G , Removing and Installing, Hybrid", page 47](#) .

6 - Fuel Delivery Unit

- ☐ Removing and Installing. Refer to [⇒ "2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing", page 36](#) .
- ☐ With the Transfer Fuel Pump - G6-
- ☐ Transfer Fuel Pump - G6- , Checking. Refer to [⇒ "8 Fuel Pump", page 81](#) .
- ☐ With Fuel Level Sensor - G-
- ☐ Fuel Level Sensor - G- , Removing and Installing. Refer to [⇒ "2.3.2 Fuel Level Sensor G , Removing and Installing, Hybrid", page 47](#) .

7 - Seal

- ☐ Replace after removing
- ☐ Insert dry into the fuel tank opening
- ☐ Coat with fuel only when installing the flange





2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing

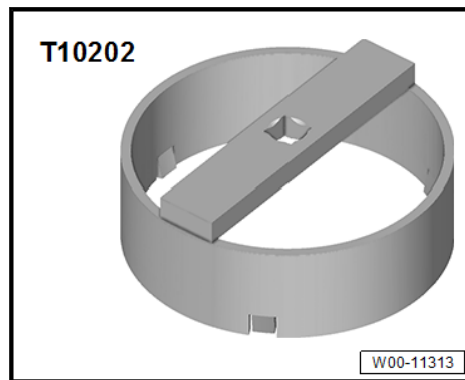
⇒ [“2.2.1 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#)

⇒ [“2.2.2 Fuel Delivery Unit, Removing and Installing, Hybrid”, page 40](#)

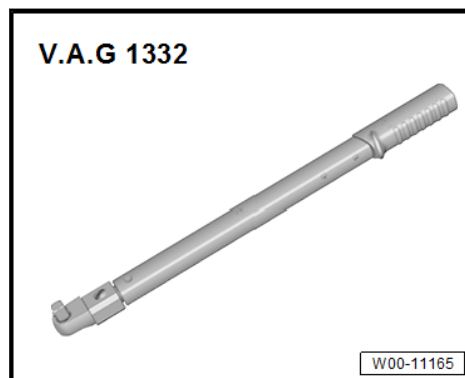
2.2.1 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing

Special tools and workshop equipment required

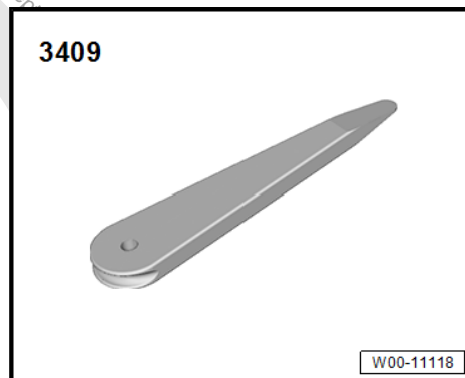
◆ Wrench - Fuel Sending Unit - T10202-



◆ Torque Wrench, 40-200Nm - VAG 1332A-



◆ Trim Removal Wedge - 3409-

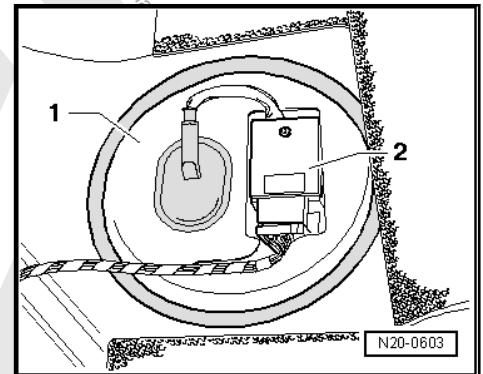


Removing

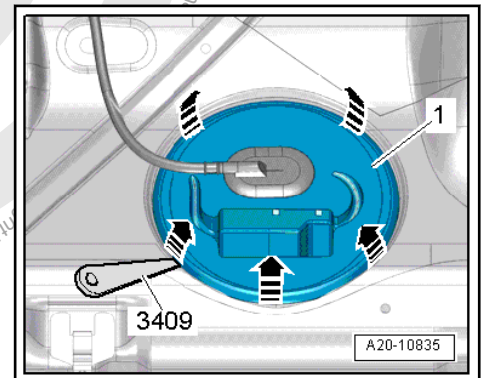
- Pay attention to the safety precautions. Refer to ⇒ [“1 Safety Precautions”, page 1](#).
- Follow the guidelines for clean working conditions. Refer to ⇒ [“3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System”, page 6](#).



- The fuel tank may be a maximum of $\frac{3}{4}$ full. This ensures the fuel level is below the fuel delivery unit flange.
- Drain the fuel tank. Refer to ➤ [“1.2 Fuel Tank, Draining”, page 14](#) .
- Disconnect the battery ground cable. Refer to ➤ [Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting](#) .
- Remove the rear bench seat. Refer to ➤ [Body Interior; Rep. Gr. 72 ; Rear Seats; Bench Seat / Single Seats, Removing and Installing](#) .
- If equipped, remove the Fuel Pump Control Module - J538-2- from the cover -1-.



- Unclip the sealing flange cover -1- at the tabs -arrows- using the Trim Removal Wedge - 3409- .



- Disconnect the connector -arrow-.

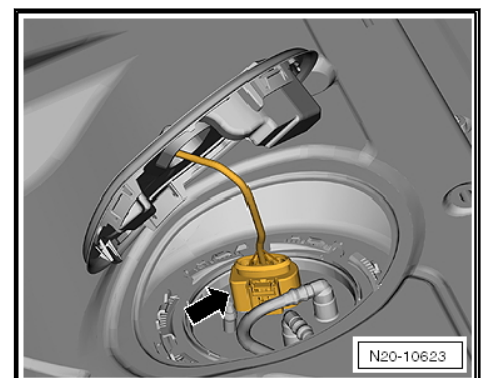


Caution

The fuel system is under pressure.

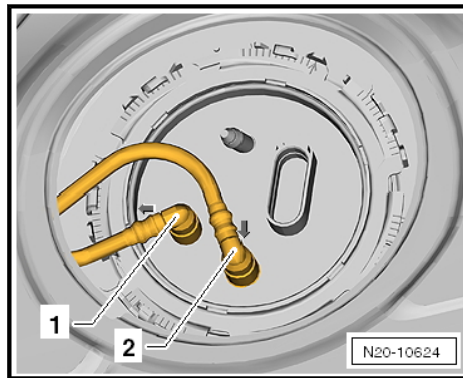
Risk of injury from fuel spraying out.

- ***Wear protective eyewear.***
- ***Wear safety gloves.***
- ***Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.***

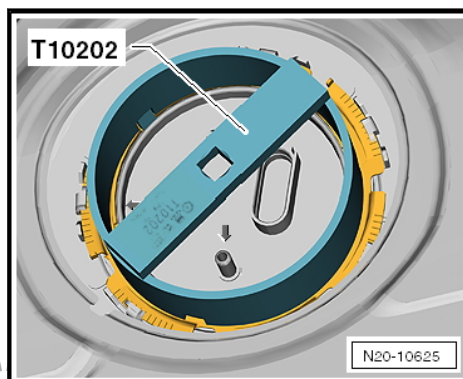




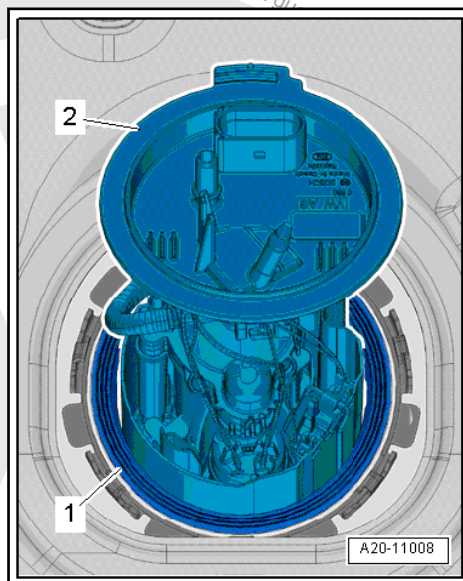
- Remove fuel line -1- and -2- from the sealing flange. Disconnect the connector couplings. Refer to ➤ [“4 Connector Couplings”, page 52](#) .



- Open the locking ring using the Wrench - Fuel Sending Unit - T10202- and lift the flange slightly.



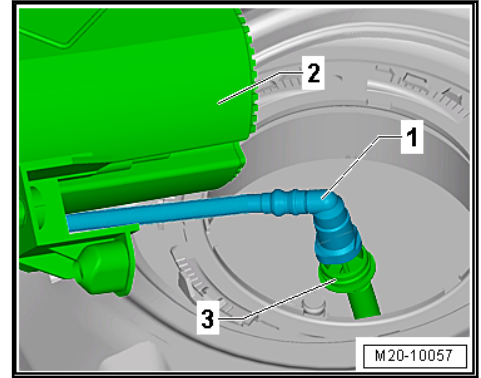
- Pull the sealing flange -2- out of the opening in the fuel tank just a little.
- Remove the seal -1- at the fuel tank opening.
- Carefully pull the sealing flange with the fuel line -2- as far as possible out of the fuel tank opening.
- Turn and tilt it as needed.
- Be careful not to bend the float arm on the fuel level sensor when removing the fuel delivery unit.
- Place a cloth underneath to catch the leaking fuel, since the fuel delivery unit is still filled.





Vehicles with suction line in the fuel tank:

- Pull the fuel delivery unit -2- as far as possible out of the fuel tank.
- Release the fuel line -1- in the fuel tank and disconnect it from the suction line -3-. Disconnect the connector couplings. Refer to ➔ [“4.1 Connector Couplings, Disconnecting”](#), [page 52](#) .



Continuation for all vehicles

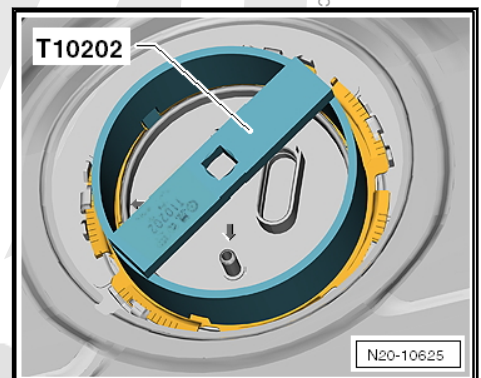
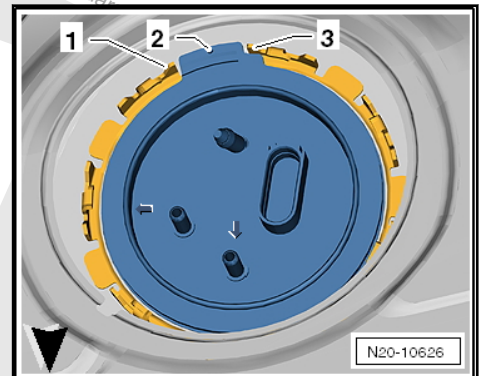


Note

- ◆ Pay attention to the installation position of the auxiliary heater fuel line. Refer to ➔ *Heating, Ventilation and Air Conditioning; Rep. Gr. 82; Parking/Auxiliary Heater; Overview - Inner Parking/Auxiliary Heater* .
- ◆ Drain the delivery unit before if it is going to be replaced.
- ◆ Follow all waste disposal regulations.
- ◆ Check the fuel tank for contaminants and clean if necessary.

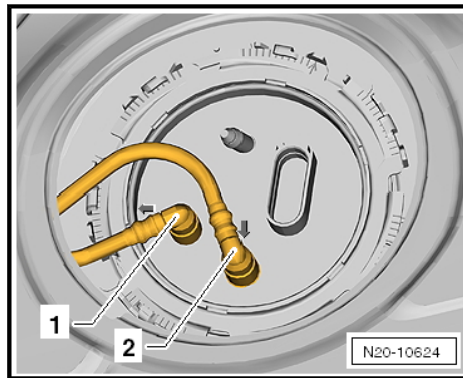
Installing:

- Install in reverse order of removal. Note the following:
- Replace the gasket if damaged.
- Insert the dry fuel delivery unit gasket into the opening in the fuel tank.
- Coat the inside of the gasket with fuel.
- Be careful not to bend the fuel gauge sensor when installing the fuel delivery unit.
- Press the sealing flange downward against the spring force and move the sealing flange into the installation position.
 - The tab -2- on sealing flange must lie between tabs -1- and -3- on the fuel tank.
 - The -arrow- points in the direction of travel.
- Tighten the locking ring using the Wrench - Fuel Sending Unit - T10202- .





- Connect the supply line -1- (black).
- Connect the return line -2- (blue or has blue markings).

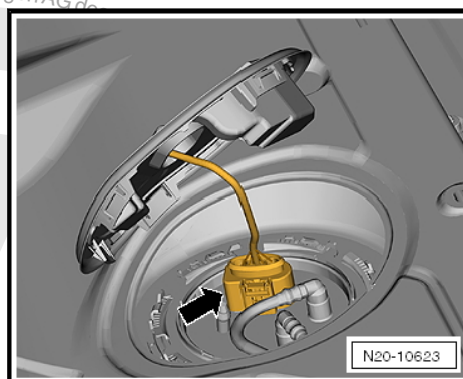


- Connect the connector -arrow-.
- Pull on the connectors and connector couplings to check if them for secure fit.
- Install the rear bench seat. Refer to ➤ Body Interior; Rep. Gr. 72 ; Rear Seats; Bench Seat / Single Seats, Removing and Installing .

The rest of the assembly is performed in reverse order. Note the following:

Tightening Specifications

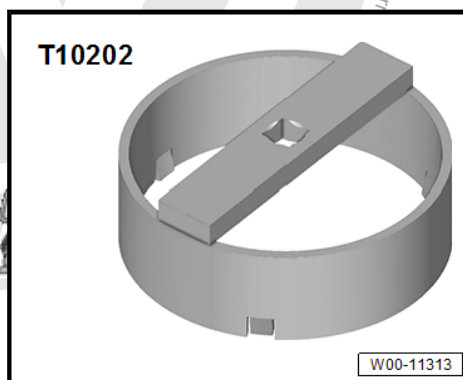
- ◆ Locking Ring. Refer to ➤ [2.1 Overview - Fuel Delivery Unit/ Fuel Level Sensor](#), page 30 .



2.2.2 Fuel Delivery Unit, Removing and Installing, Hybrid

Special tools and workshop equipment required

- ◆ Wrench - Fuel Sending Unit - T10202-

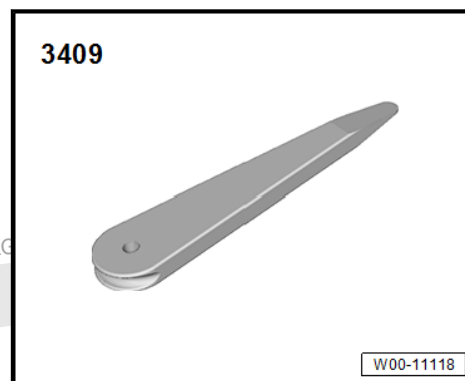


- ◆ Torque Wrench, 40-200Nm - VAG 1332A-



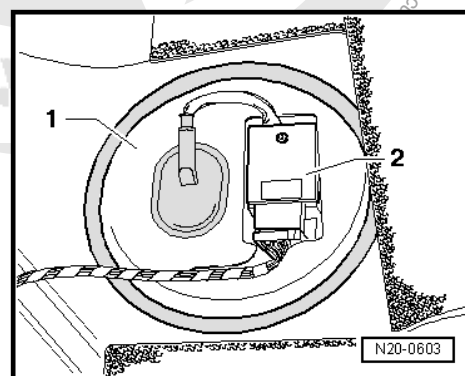


◆ Trim Removal Wedge - 3409-

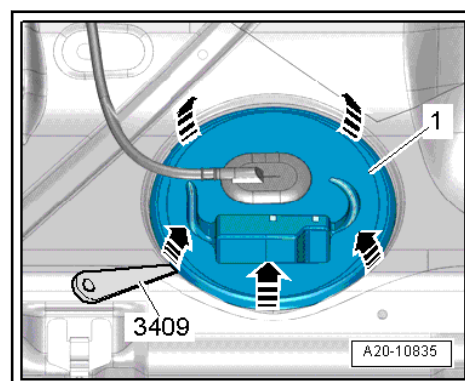


Removing

- Pay attention to the safety precautions. Refer to ⇒ [“1 Safety Precautions”, page 1](#) .
- Follow the guidelines for clean working conditions. Refer to ⇒ [“3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System”, page 6](#) .
- The fuel tank may be a maximum of $\frac{3}{4}$ full. This ensures the fuel level is below the fuel delivery unit flange.
- Drain the fuel tank. Refer to ⇒ [“1 Fuel Tank”, page 8](#) .
- Disconnect the battery ground cable. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Disconnecting and Connecting .
- Remove the rear bench seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Bench Seat / Single Seats, Removing and Installing .
- Remove the Fuel Pump Control Module - J538- -2- from the cover -1-.

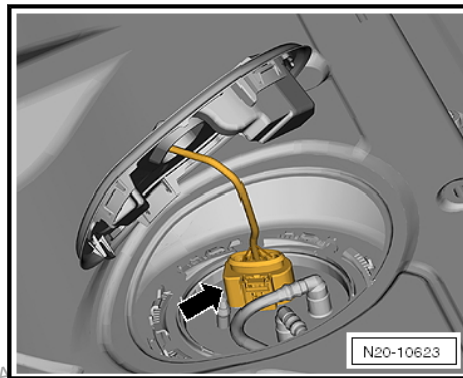


- Unclip the sealing flange cover -1- at the tabs -arrows- using the Trim Removal Wedge - 3409- .



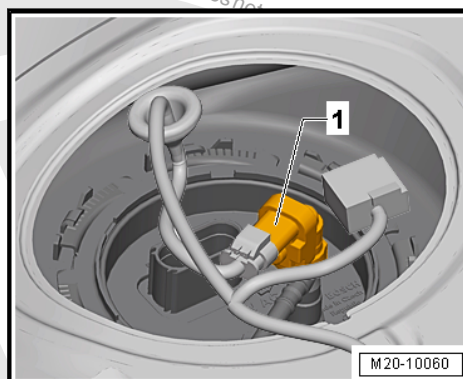


- Disconnect the connector -arrow-.



Vehicles with EVAP Canister System Pressure Sensor - G804- :

- Release and disconnect the connector from the EVAP Canister System Pressure Sensor - G804- -1-.



Continuation for All Vehicles:

- Remove the fuel lines -1- and -2- from the flange. Disconnect the connector couplings. Refer to ➤ [“4.1 Connector Couplings, Disconnecting”](#), page 52.

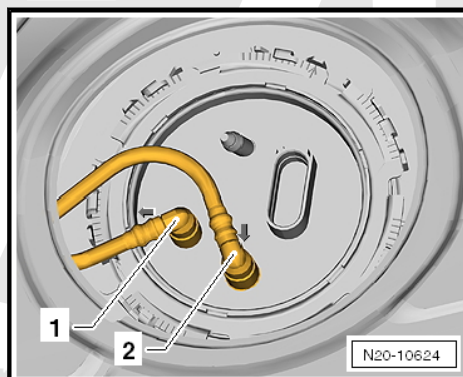


Caution

The fuel system is under pressure.

Risk of injury from fuel spraying out.

- *Wear protective eyewear.*
- *Wear safety gloves.*
- *Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.*

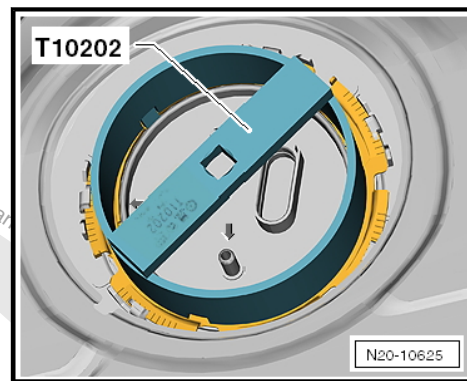


Note

If the vehicle has an auxiliary heater, disconnect the connector and the fuel line for the Metering Pump - V54- .



- Open the locking ring using the Wrench - Fuel Sending Unit - T10202- and lift the flange slightly.
- Carefully lift the fuel delivery unit flange.



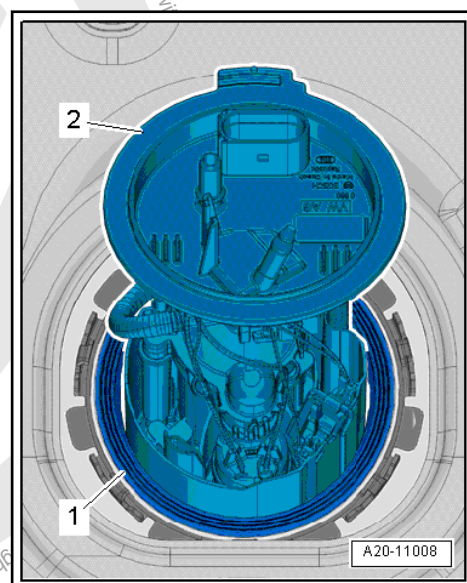
- Pull the sealing flange -2- out of the opening in the fuel tank just a little.
- Remove the seal -1- at the fuel tank opening.
- Carefully pull the fuel delivery unit with the Fuel Gauge Sensor - G- out through the fuel tank opening.
- Turn and tilt it as needed.



Note

Be careful not to bend the floater arm on the fuel level sensor when removing the fuel delivery unit.

- Place a cloth underneath to catch the leaking fuel, since the fuel delivery unit is still filled.



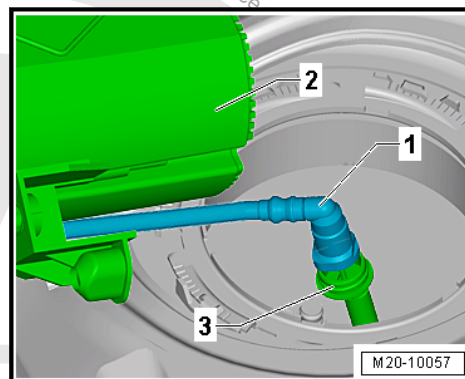


- Pull the fuel delivery unit -2- as far as possible out of the fuel tank.
- Release the fuel line -1- in the fuel tank and disconnect it from the suction line -3-. Disconnect the connector couplings. Refer to ⇒ [“4.1 Connector Couplings, Disconnecting”](#), [page 52](#) .



Note

- ◆ Drain the delivery unit before if it is going to be replaced.
- ◆ Follow all waste disposal regulations.
- ◆ Check the fuel tank for contamination.



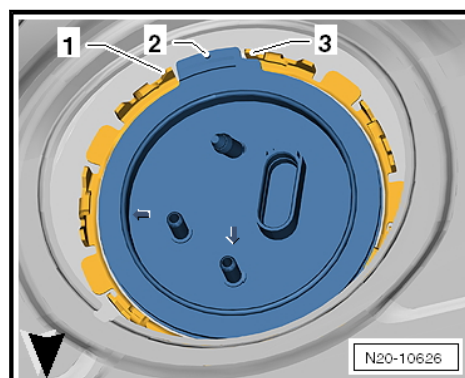
Installing:

Install in reverse order of removal. Note the following:



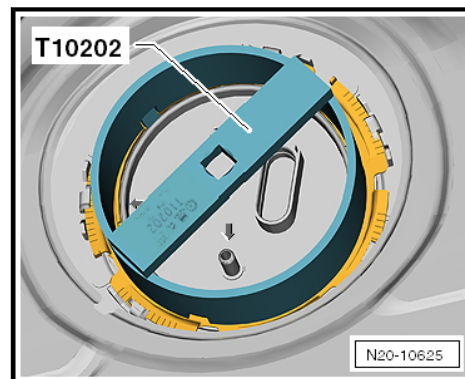
Note

- ◆ Pay attention to the installed position of all the components.
- ◆ The connector couplings must »audibly« engage when locking.
- ◆ Note the color coding when installing the connector coupling ⇒ [page 52](#) !
- ◆ Pull on the connector coupling to check for secure fit.
- Pay attention to the installation position of the auxiliary heater fuel line. Refer to ⇒ Heating, Ventilation and Air Conditioning; Rep. Gr. 82 ; Parking/Auxiliary Heater; Overview - Inner Parking/Auxiliary Heater .
- Replace the seal.
- Insert the dry fuel delivery unit gasket into the opening in the fuel tank.
- Coat the inside of the gasket with fuel.
- Be careful not to bend the fuel gauge sensor when installing the fuel delivery unit.
- Press the sealing flange downward against the spring force and move the sealing flange into the installation position.
- The tab -2- on sealing flange must lie between tabs -1- and -3- on the fuel tank.
- The -arrow- points in the direction of travel.

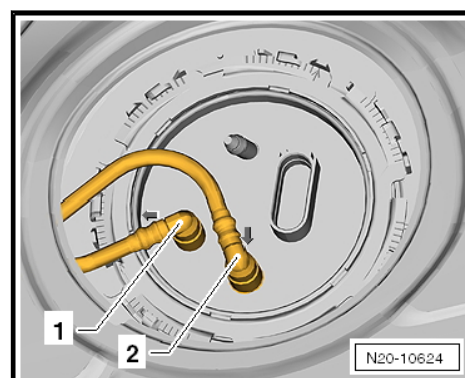




- Tighten the locking ring using the Wrench - Fuel Sending Unit - T10202- .

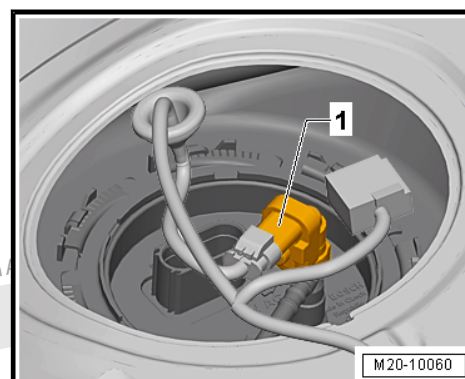


- Connect the supply line -1- (black).
- Connect the return line -2- (blue or has blue markings).



Vehicles with EVAP Canister System Pressure Sensor - G804- :

- Connect the connector for the EVAP Canister System Pressure Sensor - G804- -1-.

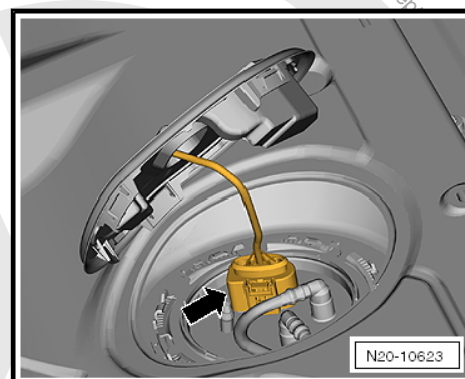


Continuation for All Vehicles:

- Connect the connector -arrow-.
- Pull on the connectors and connector couplings to check if them for secure fit.

Tightening Specifications

- ◆ Locking Ring. Refer to ➤ [“2.1 Overview - Fuel Delivery Unit/ Fuel Level Sensor”, page 30](#) .





2.3 Fuel Level Sensor - G- , Removing and Installing

⇒ [“2.3.1 Fuel Level Sensor, Removing and Installing”, page 46](#)

⇒ [“2.3.2 Fuel Level Sensor G , Removing and Installing, Hybrid”, page 47](#)

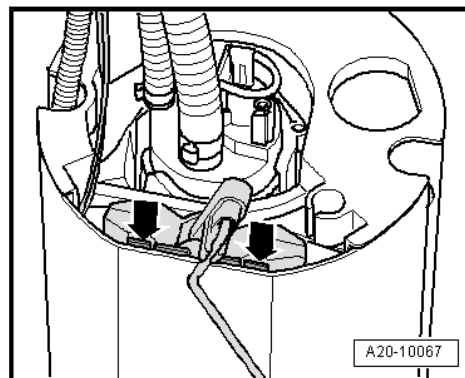
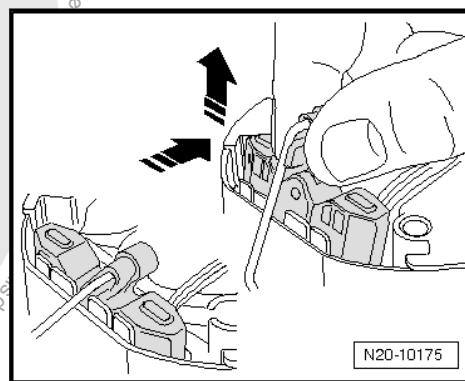
2.3.1 Fuel Level Sensor, Removing and Installing

Removing

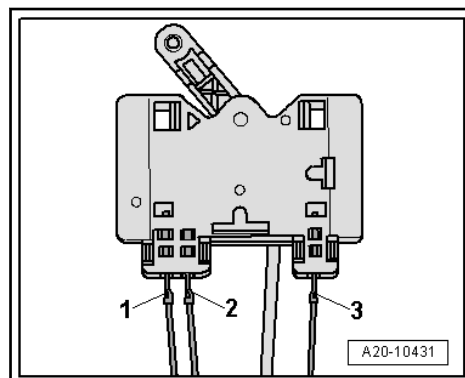
Remove the fuel delivery unit. Refer to ⇒ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .

Move the Fuel Gauge Sensor - G- slightly to the side and upward at the same time.

- If the sensor cannot be released as described, push the tabs -arrows- slightly to the side.
- Write down the cable color coding for reinstallation.



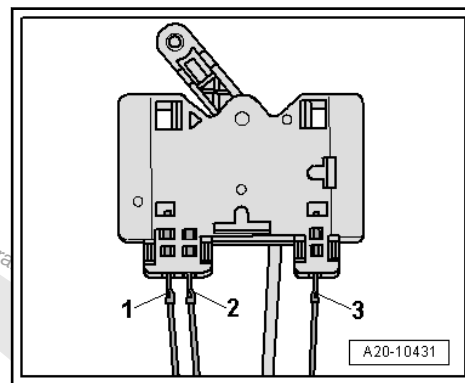
- Disconnect the connectors -1- through -3-.
- Bend back the hooks on the connector.





Installing:

- Connect the connectors -1- through -3-.
- Pay attention to the color coding.
- Pull on the connectors to make sure they are secure.
- Insert the Fuel Level Sensor - G- into the guide on the fuel delivery unit and push downward until it engages.
- Install the fuel delivery unit. Refer to ➤ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .



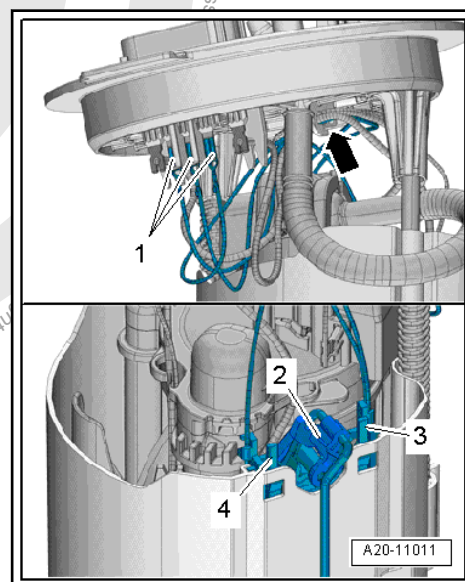
2.3.2 Fuel Level Sensor - G- , Removing and Installing, Hybrid

Removing

- Remove the fuel delivery unit. Refer to ➤ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .
- Make a note of the color coding of the cables -1- for installing later.
- Unlock and disconnect the connectors -1- from the sealing flange.
- Disengage and free up the wires on the bracket -arrow-.
- Unlock the retainers -3- and -4-.
- Remove the Fuel Level Sensor - G- -2- upward.
- Bend back the hooks on the connector.

Installing:

- Install in reverse order of removal. Note the following:
- Pay attention to the color coding of the contacts.
- Pull on the connectors to make sure they are secure.
- Insert the Fuel Level Sensor - G- into the guide on the fuel delivery unit and push downward until it engages.
- Install the fuel delivery unit. Refer to ➤ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .





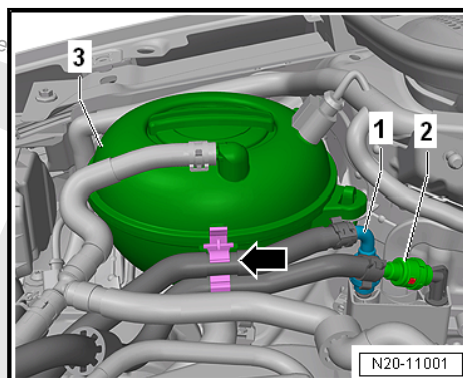
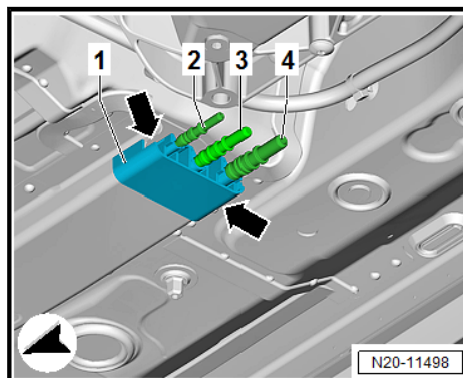
3 Wiring

⇒ **"3.1 Fuel Lines, Removing and Installing", page 48**

3.1 Fuel Lines, Removing and Installing

Removing

- If equipped, remove the underbody trim panel in front of the right rear axle. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Underbody Trim Panel; Component Location Overview - Trim Panels .
- If necessary, remove the right underbody trim panel. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Underbody Trim Panel; Component Location Overview - Trim Panels .
- Disconnect the fuel lines on the underbody. Refer to ⇒ **"4 Connector Couplings", page 52** .
- Unclip the bracket -1- from the underbody -arrows-.
- Unclip the bracket -1- from the fuel lines.
- Secure using a pulling aid (for example a cable or string) on the fuel lines.
- This pulling aid makes the reinstallation easier, to do so select enough length.
- Use adhesive tape to secure the pulling aid.
- Remove the fuel supply line -1- and -2-. Disconnect the connector couplings. Refer to ⇒ **"4 Connector Couplings", page 52** .



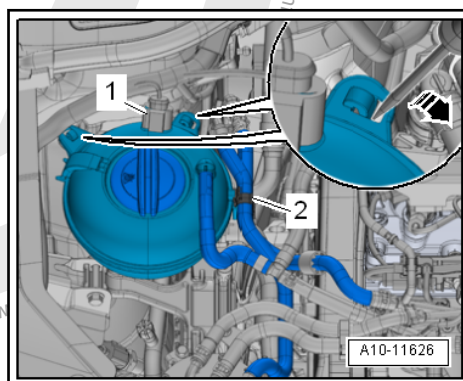
Caution

The fuel system is under pressure.

Risk of injury from fuel spraying out.

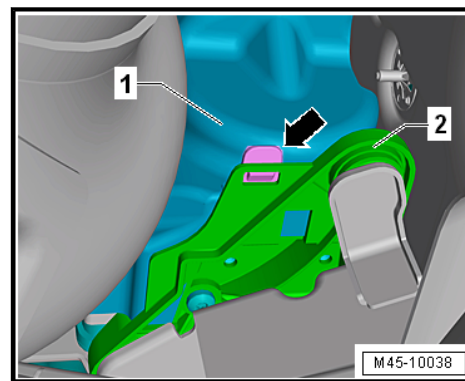
- **Wear protective eyewear.**
- **Wear safety gloves.**
- **Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.**

- Unclip the fuel lines -1- and -2- from the bracket -arrow- on the coolant expansion tank -3-.
- Disconnect the connector -1-.
- Open the bracket and remove the coolant hoses from the engine.
- Release the retainers with a screwdriver -arrow- and move the coolant expansion tank to the side.
- Open the bracket for the refrigerant lines on the right wheel housing.
- Unclip the refrigerant lines.



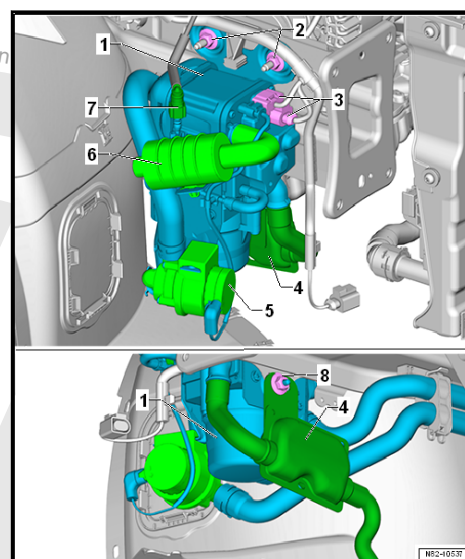


- If equipped remove the heat shield -1- from the ABS Hydraulic Unit - N55- .
- To do so, unclip the heat shield -1- from the bracket -2- -arrow-.



Vehicles with Parking Heater:

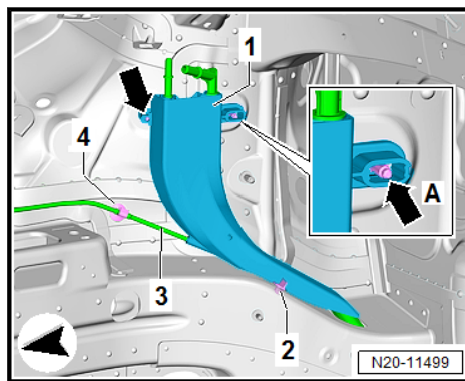
- Remove the front section of the wheel housing liner or right front wheel housing liner. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Overview - Front Wheel Housing Liner .
- Unlock and remove the fuel line -7-.
- Unclip the fuel line from the bracket and guide out.
- Remove the bracket for the refrigerant lines from the body.
- Guide the fuel line under the refrigerant lines and the engine mount.





Continuation for All Vehicles:

- Unclip the shield -1- on the stud bolt from the body -arrow A-.
- Unclip the shield -1- from the longitudinal member -2-.
- If equipped, loosen the clip -4- for the parking/auxiliary heater fuel line -3- from the body.
- Unclip the bracket -2- for the shield from the longitudinal member.
- Remove the lines upward.
- At the same time turn the lines, but do not tear!



Installing:

Install in reverse order of removal. Note the following:

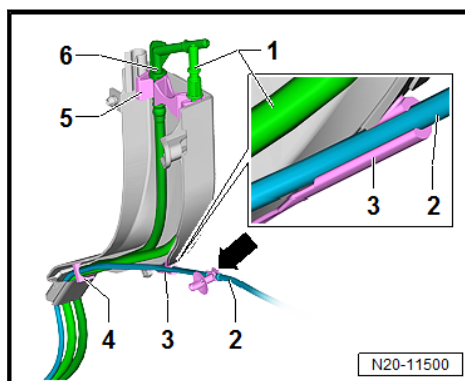


Note

- ♦ *The fuel line, bleed pipe, and fuel line for the parking/auxiliary heater are installed together.*
- ♦ *Secure the lines for example with adhesive tape.*
- Remove the pulling aid from the old lines.
- Insert the lines as shown in the shield guide and clip in. Refer to ➤ [page 50](#) .
- The fuel lines are clipped in the at the top after guiding in.
- Pay attention that the plug is seated correctly on the new lines.
- Seal the lines with suitable plugs from the Engine Bung Set - VAS 6122- .
- Secure the pulling aid on the fuel lines.
- Use adhesive tape to secure the pulling aid.
- Pay attention that the pulling aid is only secured in the front area of the lines.
- Seal the shield at the bottom from the slotted guide with adhesive tape so that the lines do not slide out.
- Place the fuel lines together with the shield on the opening in the longitudinal member.

Installation position of fuel lines on the shield:

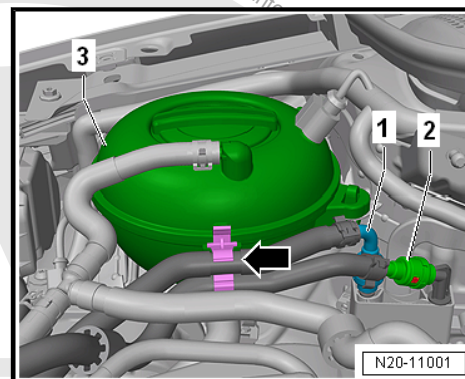
- 1 - Fuel Supply Line
- 2 - Parking/Auxiliary Heater Fuel Line
- 3 - Guide for Parking/Auxiliary Heater Fuel Line
- 4 - Lower Cable Guide
- 5 - Bracket for Wires in the Coupling Point Area
- 6 - Bleeder Line





Installation position of the fuel lines on the coupling point in engine compartment:

- 1 - Fuel Supply Line
- 2 - Bleeder Line



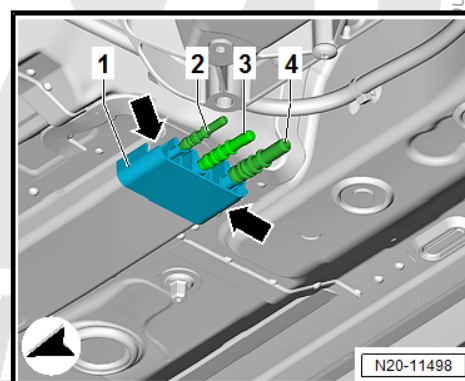
Installation position of the fuel lines on the underbody:

- 2 - Parking/Auxiliary Heater Fuel Line
- 3 - Fuel Supply Line
- 4 - Bleeder Line

Tightening Specifications:

Component	Tightening Specification
Shield nut	8 Nm

- ◆ Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Overview - Front Wheel Housing Liner .
- ◆ Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Underbody Trim Panel; Component Location Overview - Trim Panels .





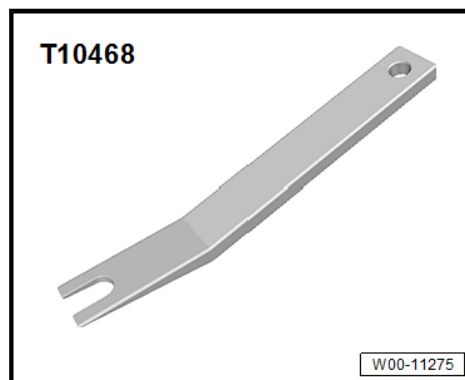
4 Connector Couplings

⇒ **“4.1 Connector Couplings, Disconnecting”, page 52**

4.1 Connector Couplings, Disconnecting

Special tools and workshop equipment required

- ◆ Lever - Fuel Line - T10468-



Connector Coupling Allocation



Note

- ◆ *The connector couplings for fuel, vacuum and bleeder lines are color-coded. There is either a colored dot on the connector coupling or the release button is the corresponding color.*
- ◆ *The connector couplings must »audibly« engage when locking.*
- ◆ *Pull on the connector coupling to check for secure fit.*

Color Coding

Connector Coupling	Color Coding on Connector Coupling
Fuel supply	Black
Fuel Return Line	Blue
Bleeder	White beige
Vacuum	Green



Caution

The fuel system is under pressure.

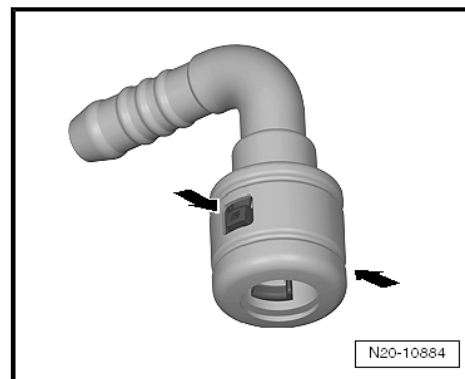
Risk of injury from fuel spraying out.

- *Wear protective eyewear.*
- *Wear safety gloves.*
- *Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.*



Version 1

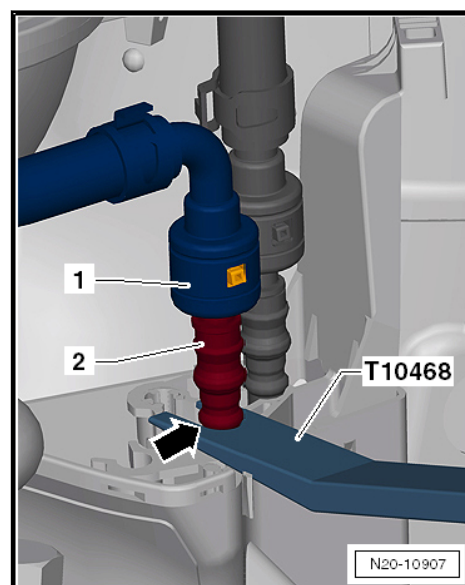
Connector coupling with right and left release buttons -arrows-.



Opening

It is necessary to counterhold the fuel separating point -1- inside the engine compartment.

- Insert the Lever - Fuel Line - T10468- between the heat shield and the stop -arrow- for the fuel line -2- and counterhold it.



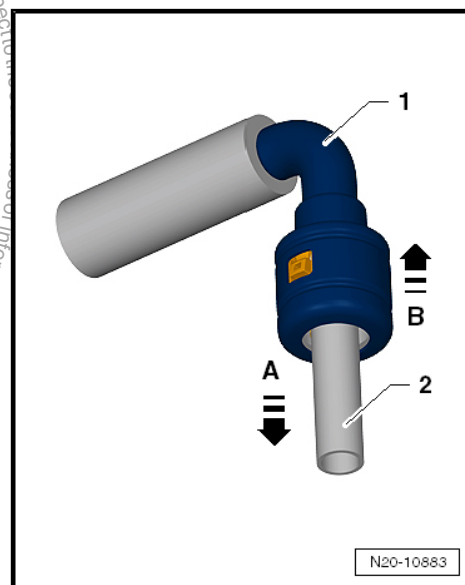
Continue for all separation points on the fuel system:

- Push the connector coupling -1- in the -direction of the arrow A-.
- Press the release buttons and hold it down.
- Disconnect the connector coupling -1- from the fuel line -2- in the -direction of the arrow B-.

Note the color coding when installing. Refer to ➤ [page 52](#) .

The connector couplings must »audibly« engage when locking.

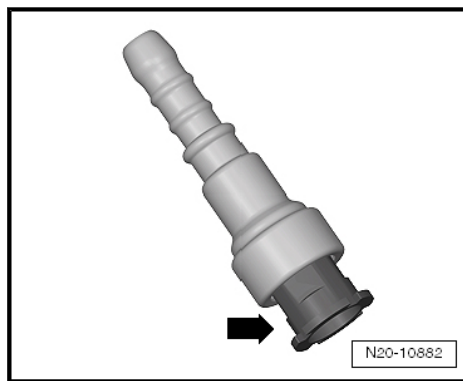
Pull on the connector coupling to check for secure fit.





Version 2

Connector coupling with pull release -arrow-:



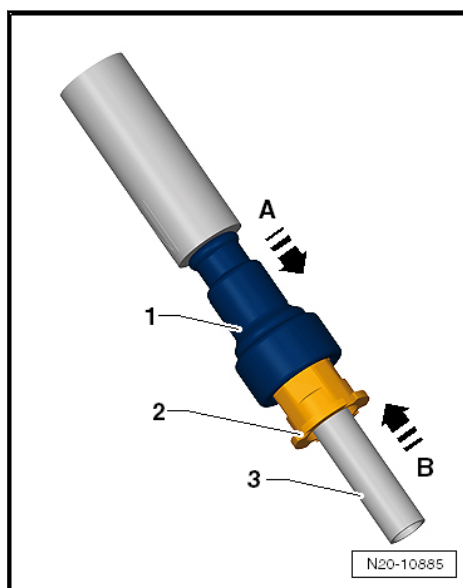
Opening

- Push the connector coupling -1- in the -direction of the arrow A-.
- Pull the pull release -2- in the -direction of the arrow B-.
- Pull the connector coupling -1- off the fuel line -3- in the -direction of the arrow B-.

Note the color coding when installing. Refer to ➤ [page 52](#) .

The connector couplings must »audibly« engage when locking.

- Pull on the connector coupling to check for secure fit.



Version 3

Connector coupling with front button -arrow-:

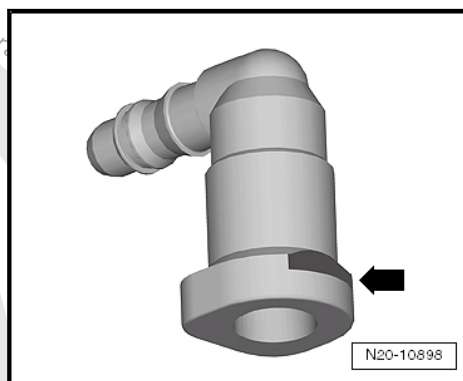
Opening

- Press the release button -arrow- and remove the connector couplings.

Note the color coding when installing. Refer to ➤ [page 52](#) .

The connector couplings must »audibly« engage when locking.

- Pull on the connector coupling to check for secure fit.



Version 4

Connector coupling with right and left release button -arrows-:

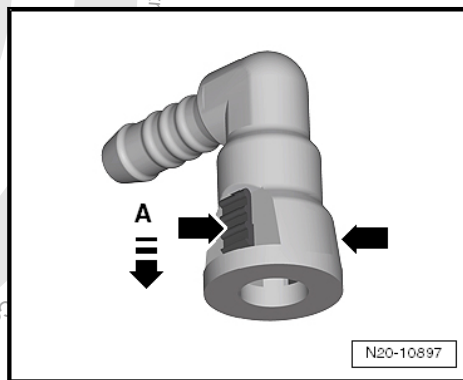
Opening

- Push the connector coupling in the -direction of the arrow A-.
- Press the release buttons -arrows- and remove the connector coupling.

Note the color coding when installing. Refer to ➤ [page 52](#) .

The connector couplings must »audibly« engage when locking.

- Pull on the connector coupling to check for secure fit.





Version 5

Connector coupling with right and left release buttons -arrows-:

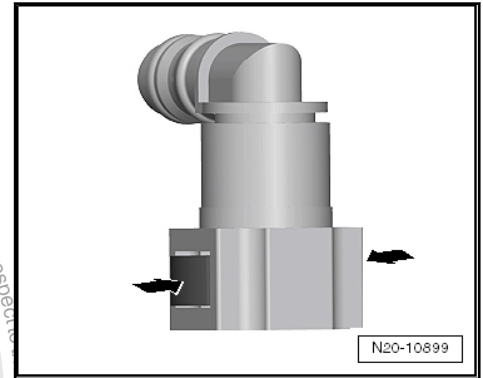
Opening

- Press the release buttons -arrows- and remove the connector coupling.

Note the color coding when installing. Refer to [⇒ page 52](#) .

The connector couplings must »audibly« engage when locking.

- Pull on the connector coupling to check for secure fit.



Version 6

Connector coupling with right and left release buttons -arrows-:

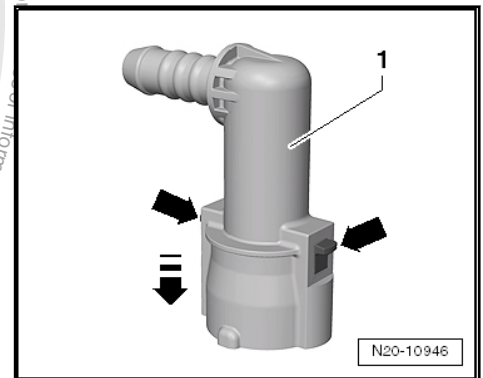
Opening

- Press the connector coupling -1- in the -direction of the arrow- and hold it down.
- Press the release buttons -arrows- and remove the connector coupling.

Note the color coding when installing. Refer to [⇒ page 52](#) .

The connector couplings must »audibly« engage when locking.

- Pull on the connector coupling to check for secure fit.



Version 7

Connector coupling -1- with right and left release buttons -2-:

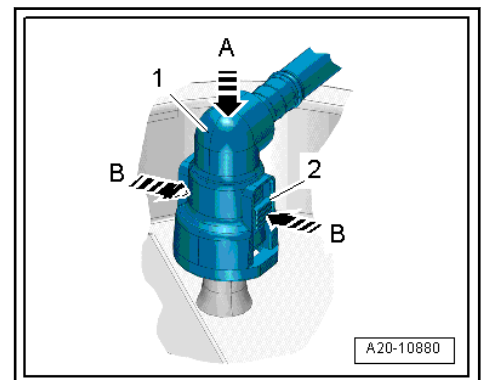
Opening

- Press the connector coupling -1- in -direction of the arrow A- and hold it down.
- Push the release buttons -2- in the -direction of arrow B- and remove the connector coupling -1-.

Note the color coding when installing. Refer to [⇒ page 52](#) .

The connector couplings must »audibly« engage when locking.

- Pull on the connector coupling to check for secure fit.





5 Fuel Filter

⇒ [“5.1 Overview - Fuel Filter”, page 56](#)

⇒ [“5.2 Fuel Filter, Removing and Installing”, page 58](#)

5.1 Overview - Fuel Filter

⇒ [“5.1.1 Overview - Fuel Filter, Vehicles with Externally Installed Fuel Filter”, page 56](#)

⇒ [“5.1.2 Overview - Fuel Filter, Fuel Filter in the Fuel Delivery Unit Flange”, page 58](#)

5.1.1 Overview - Fuel Filter, Vehicles with Externally Installed Fuel Filter

The fuel filter in the non-return fuel system has a pressure relief valve. In this system, only the supply line is routed forward to the engine compartment.



1 - Fuel Filter

- ☐ with fuel regulating valve
- ☐ Flow direction is marked with arrows
- ☐ Do not interchange the connections.
- ☐ Removing and Installing. Refer to ➤ ["5.2 Fuel Filter, Removing and Installing", page 58](#) .

2 - Fuel Supply Line

- ☐ Black
- ☐ Do not kink
- ☐ From the fuel tank
- ☐ Clipped to the fuel tank
- ☐ To disconnect, press the release button on the connecting piece
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Pull on the connector coupling to check for secure fit.
- ☐ Connector Couplings, Disconnecting. Refer to ➤ ["4 Connector Couplings", page 52](#) .

3 - Fuel Return Line

- ☐ Blue
- ☐ To the fuel tank
- ☐ Do not kink
- ☐ Clipped to the fuel tank
- ☐ To disconnect, press the release button on the connecting piece
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Pull on the connector coupling to check for secure fit.
- ☐ Connector Couplings, Disconnecting. Refer to ➤ ["4 Connector Couplings", page 52](#) .

4 - Fuel Supply Line

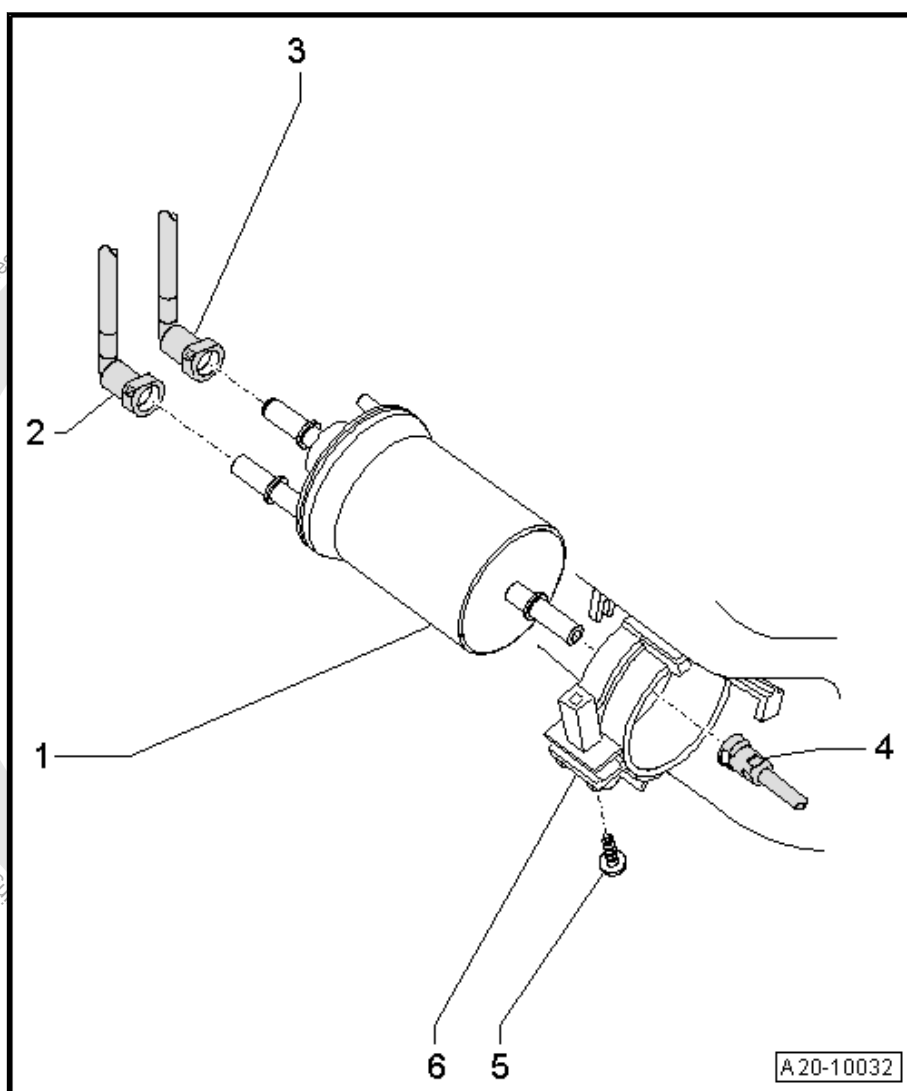
- ☐ Black
- ☐ To the engine
- ☐ Do not kink
- ☐ To disconnect, press the release button on the connecting piece
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Pull on the connector coupling to check for secure fit.
- ☐ Connector Couplings, Disconnecting. Refer to ➤ ["4 Connector Couplings", page 52](#) .

5 - Bolt

- ☐ 3 Nm

6 - Bracket for Fuel Filter

- ☐ Secured on the fuel tank.





5.1.2 Overview - Fuel Filter, Fuel Filter in the Fuel Delivery Unit Flange



Note

The pressure relief valve and the fuel filter are integrated in the fuel delivery unit and cannot be replaced separately. Refer to ➤ [“5.2.2 Fuel Filter, Removing and Installing, Vehicles with Fuel Filter in Fuel Delivery Unit Flange”, page 59](#).

5.2 Fuel Filter, Removing and Installing

⇒ [“5.2.1 Fuel Filter, Removing and Installing, Vehicles with Externally Installed Fuel Filter”, page 58](#)

⇒ [“5.2.2 Fuel Filter, Removing and Installing, Vehicles with Fuel Filter in Fuel Delivery Unit Flange”, page 59](#)

5.2.1 Fuel Filter, Removing and Installing, Vehicles with Externally Installed Fuel Filter

Special tools and workshop equipment required

- ◆ Shop Crane - Drip Tray - VAS 6208



Removing

- Pay attention to the safety precautions. Refer to ➤ [“1 Safety Precautions”, page 1](#).
- Follow the guidelines for clean working conditions. Refer to ➤ [“3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System”, page 6](#).
- Place the Shop Crane - Drip Tray - VAS 6208- under the fuel filter.



Caution

The fuel system is under pressure.

Risk of injury from fuel spraying out.

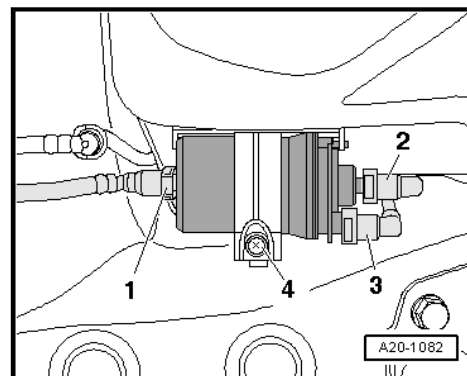
- *Wear protective eyewear.*
- *Wear safety gloves.*
- *Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.*



- Disconnect the fuel lines -1- and -2- and -3-. Disconnect the connector couplings. Refer to [⇒ “4 Connector Couplings”, page 52](#).
- Remove the bolt -4-.
- Remove the fuel filter.

Installing

Install in reverse order of removal, while noting the following:

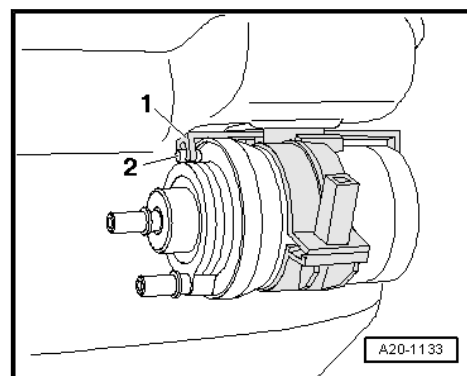


Fuel filter installation position

- The flow direction is marked on the filter housing with arrows.
- The pin -2- on filter housing must engage in recess of the guide -1- on filter bracket.

Tightening Specifications

- ◆ Refer to [⇒ “5.1 Overview - Fuel Filter”, page 56](#)



5.2.2 Fuel Filter, Removing and Installing, Vehicles with Fuel Filter in Fuel Delivery Unit Flange



Note

- ◆ The pressure relief valve and the fuel filter are integrated in the fuel delivery unit and cannot be replaced separately.
- ◆ Replace the fuel delivery unit. Refer to [⇒ “2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#).



6 EVAP System

⇒ [“6.1 Connection Diagram - EVAP System”, page 60](#)

⇒ [“6.2 Overview - EVAP System”, page 62](#)

⇒ [“6.3 Overview - Diagnostic Pump”, page 66](#)

⇒ [“6.4 Leak Detection Pump, Removing and Installing” page 68](#)

⇒ [“6.5 EVAP Canister, Removing and Installing” page 69](#)

⇒ [“6.6 Fuel Tank, Checking Ventilation”, page 69](#)

⇒ [“6.7 Fuel System, Checking for Leaks”, page 74](#)

6.1 Connection Diagram - EVAP System

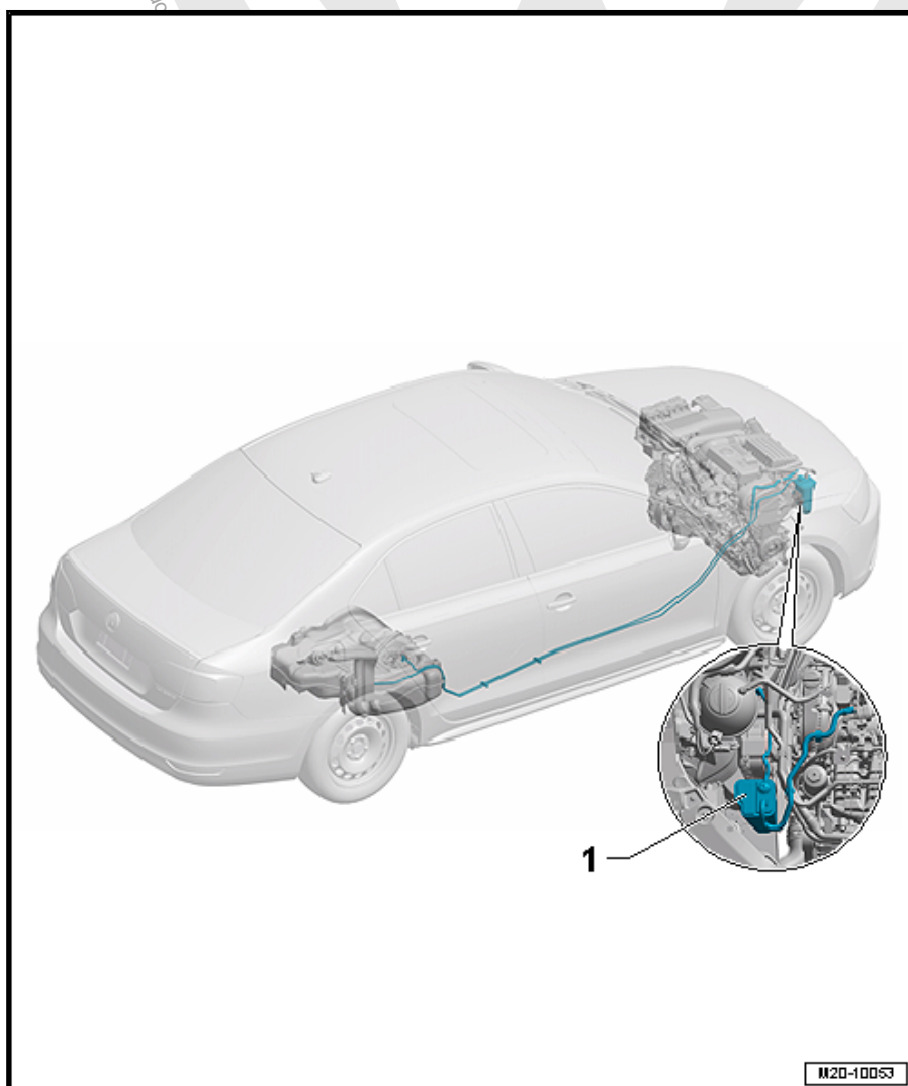
⇒ [“6.1.1 Connection Diagram - EVAP System, EVAP Canister in Engine Compartment”, page 60](#)

⇒ [“6.1.2 Connection Diagram - EVAP System, Right Rear EVAP Canister”, page 61](#)

6.1.1 Connection Diagram - EVAP System, EVAP Canister in Engine Compartment

1 - EVAP Canister

- ❑ Removing and Installing. Refer to ⇒ [“6.5.1 EVAP Canister, Removing and Installing, EVAP Canister in Engine Compartment”, page 69](#) .



6.1.2 Connection Diagram - EVAP System, Right Rear EVAP Canister

1 - Leak Detection Pump - V144-

- ❑ Vehicles with the engine code CNLA have an additional pressure regulator valve. Refer to ➤ [“6.3 Overview - Diagnostic Pump”, page 66](#).
- ❑ Removing and Installing. Refer to ➤ [“6.4 Leak Detection Pump, Removing and Installing”, page 68](#).

2 - EVAP Canister Purge Regulator Valve 1 - N80-

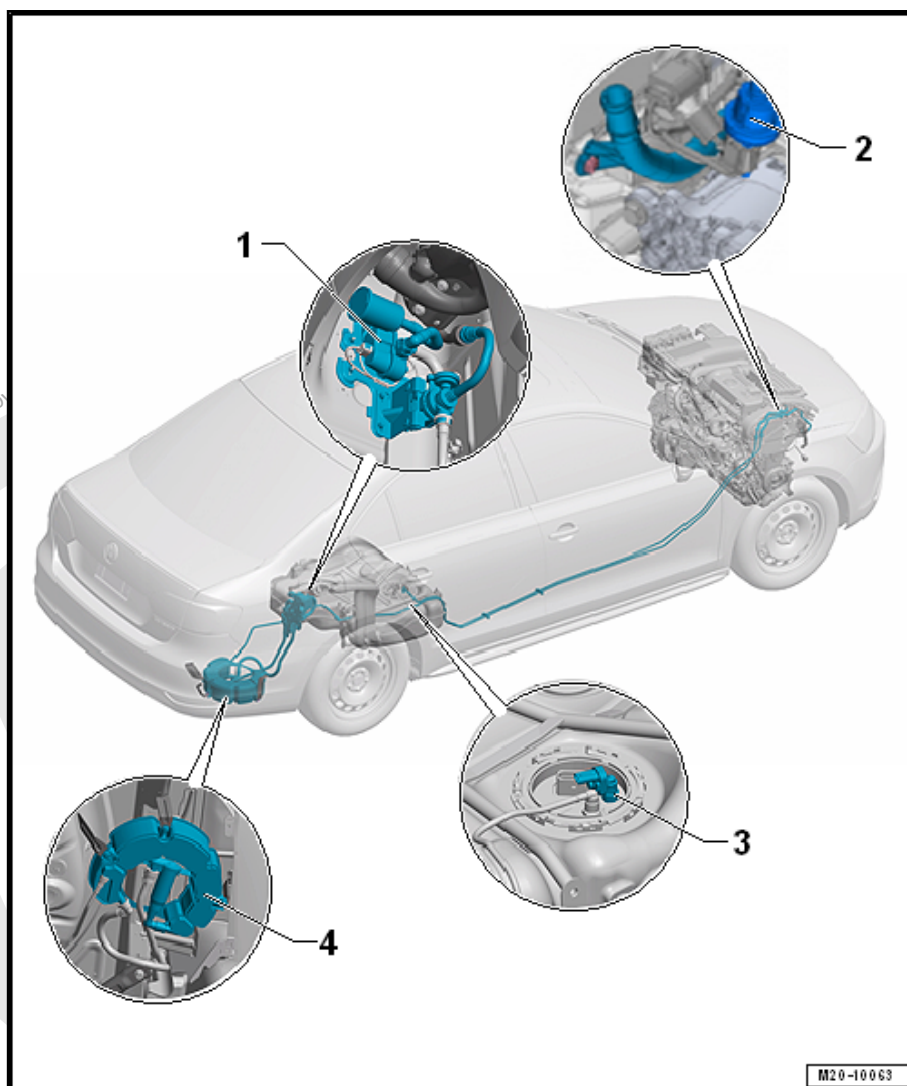
- ❑ For removal on vehicles with engine codes CNLA, CRJA and CZTA, remove the intake manifold.

3 - EVAP Canister System Pressure Sensor - G804-

- ❑ Not installed on all vehicles
- ❑ Check for secure fit

4 - EVAP Canister

- ❑ Removing and Installing. Refer to ➤ [“6.5.2 EVAP Canister, Removing and Installing, Right Rear EVAP Canister”, page 69](#).





6.2 Overview - EVAP System

⇒ [“6.2.1 Overview - EVAP System, EVAP Canister in Engine Compartment”, page 62](#)

⇒ [“6.2.2 Overview - EVAP System, Right Rear EVAP Canister”, page 64](#)

6.2.1 Overview - EVAP System, EVAP Canister in Engine Compartment



Note

- ◆ *Hose connections are secured with either spring or hose clamps.*
- ◆ *Replace the locking clamps with spring clamps.*
- ◆ *Hose Clip Pliers - VAS 6340- and the Hose Clip Pliers - VAS 6362- are recommended for installing spring-type clips.*
- ◆ *The connector couplings must »audibly« engage when locking.*
- ◆ *Note the color coding when installing the connector coupling ⇒ [page 52](#) !*
- ◆ *Pull on the connector coupling to check for secure fit.*
- ◆ *Disconnect the connector couplings. Refer to ⇒ [“4 Connector Couplings”, page 52](#).*

1 - EVAP Canister

- ☐ Component location:
in the engine compartment on the right side
- ☐ Removing and Installing. Refer to ➤ ["6.5.1 EVAP Canister, Removing and Installing, EVAP Canister in Engine Compartment", page 69](#) .
- ☐ When liquid fuel is determined in the EVAP canister, it must be replaced

2 - Bracket

- ☐ For the EVAP canister

3 - Nut

- ☐ 10 Nm

4 - Engine Mount

5 - Bolts

- ☐ 10 Nm

6 - Connecting Line

- ☐ With the pressure regulator valve in the connecting line
- ☐ Check for secure fit
- ☐ From the fuel tank
- ☐ Do not kink
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to ➤ ["4 Connector Couplings", page 52](#) .
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Pull on the connector coupling to check for secure fit.

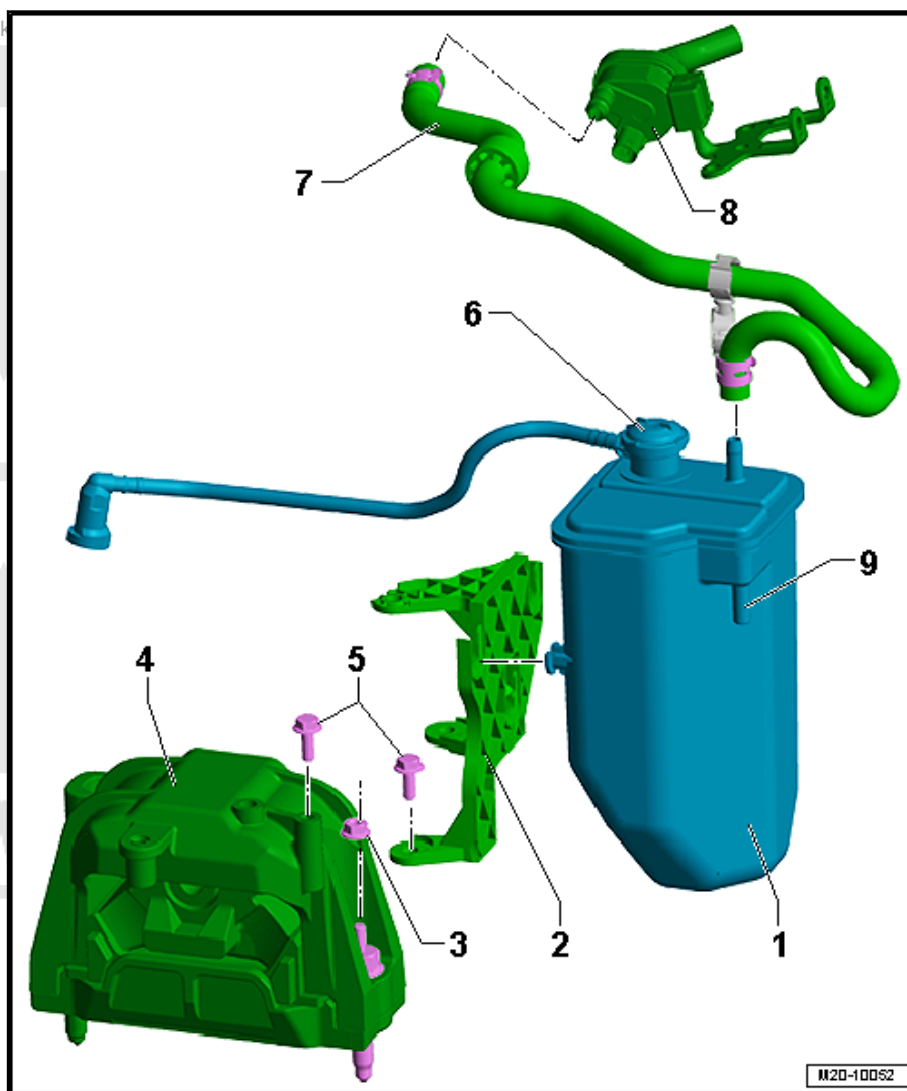
7 - Connecting Line

- ☐ to Intake Manifold
- ☐ Check for secure fit

8 - EVAP Canister Purge Regulator Valve 1 - N80-

- ☐ For removal on vehicles with engine codes CNLA, CRJA and CZTA, remove the intake manifold.
- ☐ The valve is closed when the ignition is off
- ☐ Valve is activated (pulsed) by the engine control module when the engine is warm

9 - Vent Hole





6.2.2 Overview - EVAP System, Right Rear EVAP Canister



Note

- ◆ *Hose connections are secured with either spring or hose clamps.*
- ◆ *Replace the locking clamps with spring clamps.*
- ◆ *Hose Clip Pliers - VAS 6340- and the Hose Clip Pliers - VAS 6362- are recommended for installing spring-type clips.*
- ◆ *The connector couplings must »audibly« engage when locking.*
- ◆ *Note the color coding when installing the connector coupling ⇒ [page 52](#) !*
- ◆ *Pull on the connector coupling to check for secure fit.*
- ◆ *Disconnect the connector couplings. Refer to ⇒ ["4 Connector Couplings", page 52](#) .*



1 - Fuel Tank

- ☐ Removing and Installing. Refer to ⇒ [“1.3 Fuel Tank, Removing and Installing”, page 25](#) .

2 - Bolts

- ☐ Tightening specification
 Refer to ⇒ [“1.1.3 Overview - Fuel Tank, Hybrid”, page 12](#) .

3 - Bleeder Line

- ☐ Behind the wheel housing liner
- ☐ Check for secure fit
- ☐ Do not kink
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to ⇒ [“4 Connector Couplings”, page 52](#) .
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Pull on the connector coupling to check for secure fit.

4 - Connecting Line

- ☐ From the fuel tank to the valve ⇒ [Item 18 \(page 66\)](#)
- ☐ Check for secure fit
- ☐ Do not kink
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to ⇒ [“4 Connector Couplings”, page 52](#) .
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Pull on the connector coupling to check for secure fit.

5 - Nuts

- ☐ Tightening specification ⇒ [Item 5 \(page 67\)](#) .

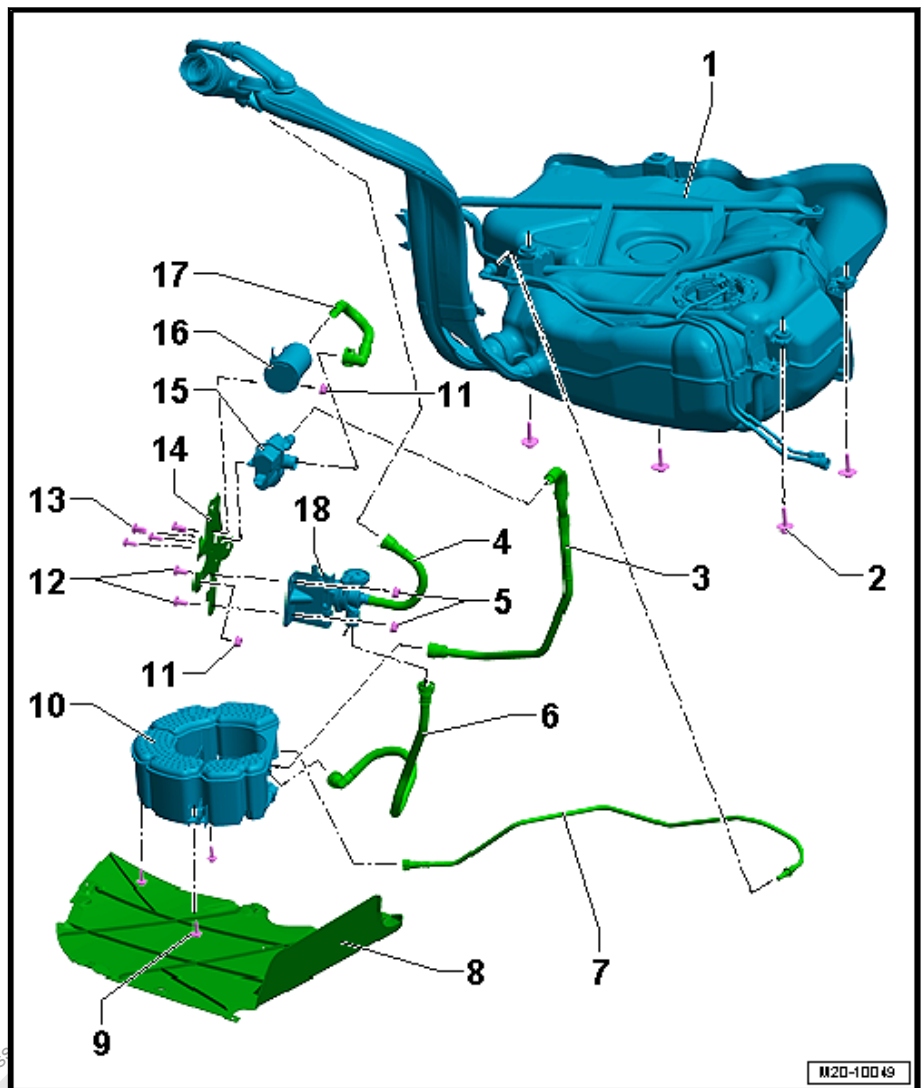
6 - Connecting Line

- ☐ From the pressure regulator to the valve ⇒ [Item 18 \(page 66\)](#)

7 - Bleeder Line

- ☐ To the EVAP Canister Purge Regulator Valve 1 - N80- on the intake manifold
- ☐ Check for secure fit
- ☐ Do not kink
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to ⇒ [“4 Connector Couplings”, page 52](#) .
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Pull on the connector coupling to check for secure fit.

8 - Underbody Cover





9 - Bolts

- ☐ 8 Nm

10 - EVAP Canister

- ☐ Component location: under the right rear floor panel
- ☐ Removing and Installing. Refer to ⇒ [“6.5.2 EVAP Canister, Removing and Installing, Right Rear EVAP Canister”, page 69](#) .
- ☐ When liquid fuel is determined in the EVAP canister, it must be replaced

11 - Nut

- ☐ Tightening specification ⇒ [Item 7 \(page 67\)](#) .

12 - Threaded Pins

- ☐ Installed on the Leak Detection Pump - V144- bracket

13 - Bolt

- ☐ Leak Detection Pump - V144- to bracket
- ☐ Tightening specification ⇒ [Item 8 \(page 67\)](#) .

14 - Bracket

- ☐ For the Leak Detection Pump - V144-

15 - Leak Detection Pump - V144-

- ☐ Component location: under the wheel housing liner in the right rear wheel housing
- ☐ Removing and Installing. Refer to ⇒ [“6.4 Leak Detection Pump, Removing and Installing”, page 68](#) .
- ☐ If the diagnostic pump is replaced due to fuel entering, the EVAP canister must also be replaced.

16 - Air Filter

- ☐ For the Leak Detection Pump - V144-

17 - Connecting Line

- ☐ From the Leak Detection Pump - V144- to the air filter
- ☐ Check for secure fit
- ☐ Do not kink
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to ⇒ [“4 Connector Couplings”, page 52](#) .
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Pull on the connector coupling to check for secure fit.

18 - Valve

6.3 Overview ■ Diagnostic Pump

1 - Fuel Tank Filler Neck

2 - Connecting Pipe

- ☐ Leak Detection Pump V144- to the air filter
- ☐ Check for secure fit
- ☐ Do not kink
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to [⇒ "4 Connector Couplings", page 52](#)
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Pull on the connector coupling to check for secure fit.

3 - Valve

4 - Connecting Pipe

- ☐ From the EVAP canister
- ☐ Check for secure fit
- ☐ Do not kink
- ☐ To disconnect, press the release button on the connecting piece
- ☐ Connector Couplings, Disconnecting. Refer to [⇒ "4 Connector Couplings", page 52](#)
- ☐ The connector couplings must »audibly« engage when locking.
- ☐ Pull on the connector coupling to check for secure fit.

5 - Nut

- ☐ 6 Nm

6 - Bracket

- ☐ Leak Detection Pump - V144-

7 - Nut

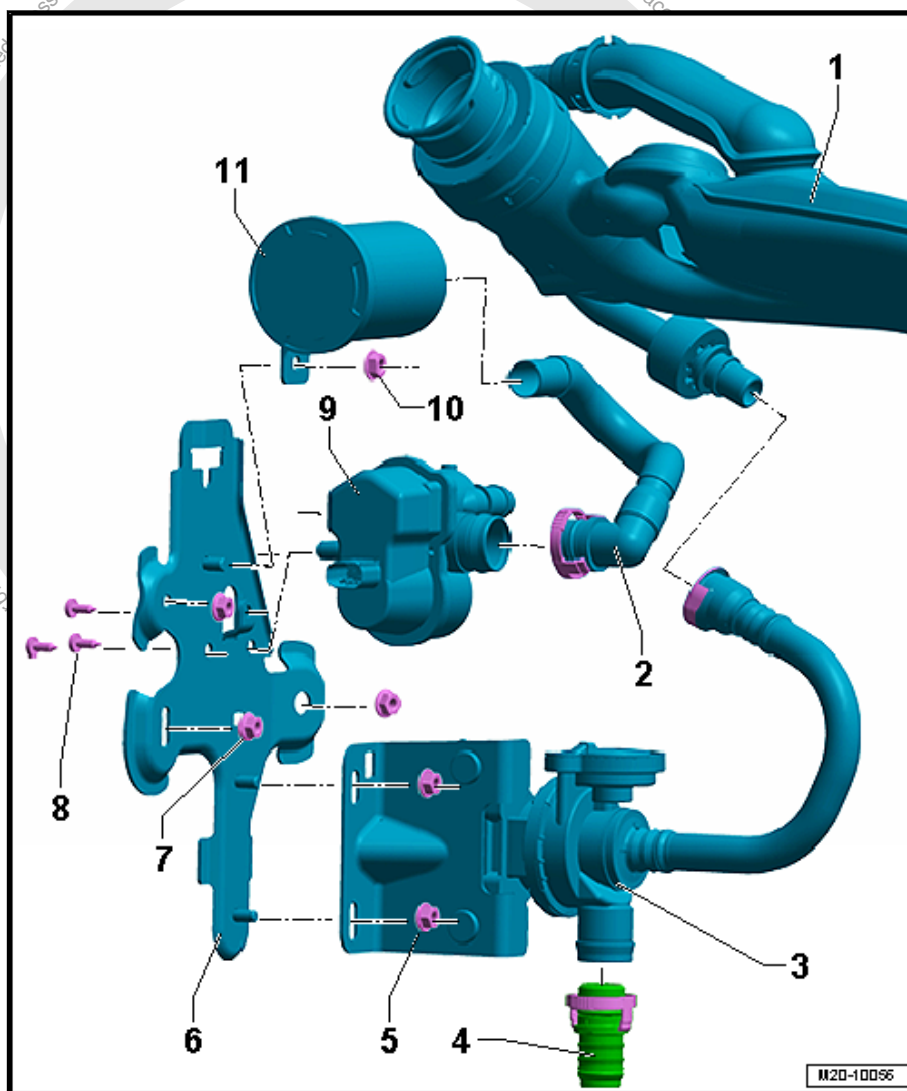
- ☐ Leak Detection Pump - V144- bracket to the body
- ☐ Quantity: 3
- ☐ 6 Nm

8 - Bolts

- ☐ Leak Detection Pump - V144- to bracket
- ☐ 3 Nm

9 - Leak Detection Pump - V144-

- ☐ Removing and Installing. Refer to [⇒ "6.4 Leak Detection Pump, Removing and Installing", page 68](#)
- ☐ Check using the Vehicle Diagnostic Tester Refer to [⇒ "6.7 Fuel System, Checking for Leaks", page 74](#)
- ☐ If the diagnostic pump is replaced due to fuel entering, the EVAP canister must also be replaced.





10 - Nut

- ☐ Air filter at bracket
- ☐ 2 Nm

11 - Air Filter

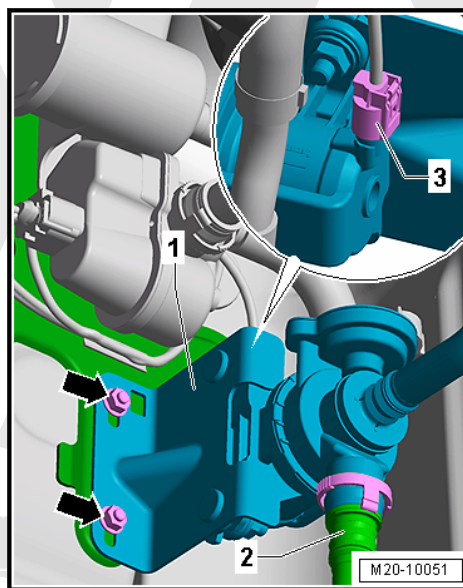
6.4 Leak Detection Pump, Removing and Installing

Removing

- Remove the right rear wheel housing liner. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Overview - Rear Wheel Housing Liner .

Vehicles with pressure regulating valve

- Disconnect the connector -3- from the pressure regulating valve -1-.
- Disconnect the connecting line -2- and remove from the pressure regulating valve -1-.
- Remove the nuts -arrows- and the pressure regulating valve -1- from the bracket.



Continuation for all vehicles

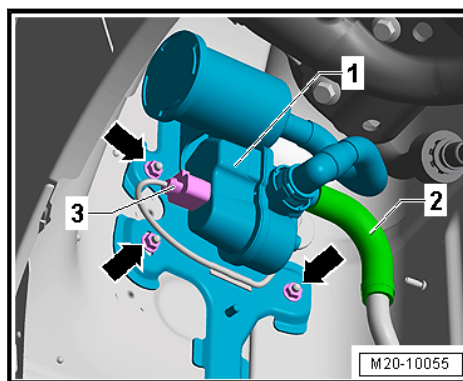
- Disconnect the vent line -2- from the Leak Detection Pump - V144- -1-.
- Disconnect the connector -3- from the Leak Detection Pump - V144- -1-.
- Remove the nuts -arrows- and remove the Leak Detection Pump - V144- -1- with the bracket.

Installing

Install in reverse order of removal. Note the following:

Tightening Specifications

- ◆ Refer to ➤ ["6.3 Overview - Diagnostic Pump", page 66](#)



6.5 EVAP Canister, Removing and Installing

⇒ [“6.5.1 EVAP Canister, Removing and Installing, EVAP Canister in Engine Compartment”, page 69](#)

⇒ [“6.5.2 EVAP Canister, Removing and Installing, Right Rear EVAP Canister”, page 69](#)

6.5.1 EVAP Canister, Removing and Installing, EVAP Canister in Engine Compartment

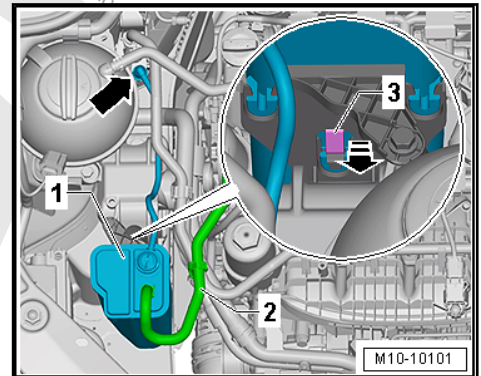
Removing

- Disconnect the vent line -arrow-. Refer to ⇒ [“4.1 Connector Couplings, Disconnecting”, page 52](#) .
- Disconnect the line -2- on the EVAP canister.
- Release the tab -3- in the direction of the arrow and remove the EVAP canister -1- upward.
- Remove the EVAP canister -1- upward out of the bracket.

Installing

Install in reverse order of removal. Note the following:

- ◆ Attach the bleed lines so that they click into place.



6.5.2 EVAP Canister, Removing and Installing, Right Rear EVAP Canister

Removing

- If equipped, remove the right rear underbody trim panel. Refer to ⇒ [Body Exterior; Rep. Gr. 66 ; Underbody Trim Panel; Underbody Trim Panels, Removing and Installing](#) .
- Disconnect and remove the lines -2-, -3- and -4-. To do so, press in or press together the circlip.
- Remove the bolts -arrows- and remove the EVAP canister -1-.

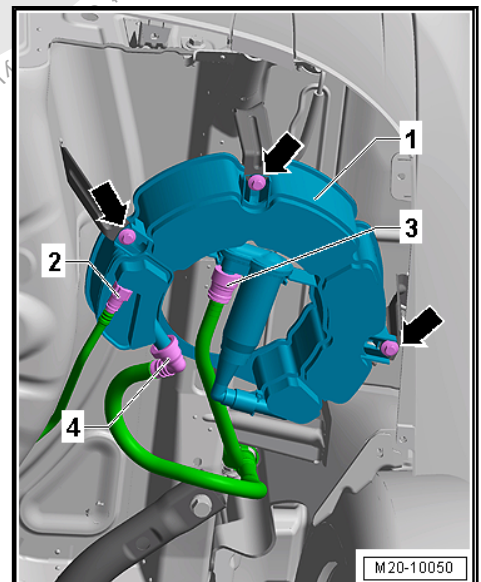
Installing

Install in reverse order of removal. Note the following:

- ◆ Attach the bleed lines so that they click into place.

Tightening Specifications

- ◆ Refer to ⇒ [“6.2.2 Overview - EVAP System, Right Rear EVAP Canister”, page 64](#)

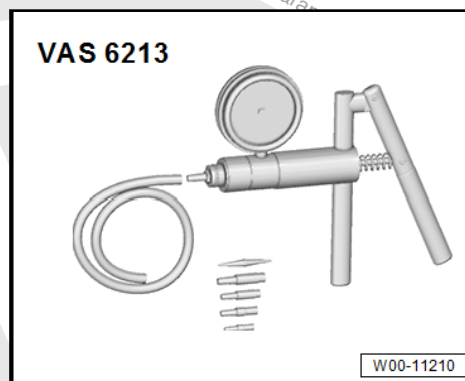


6.6 Fuel Tank, Checking Ventilation

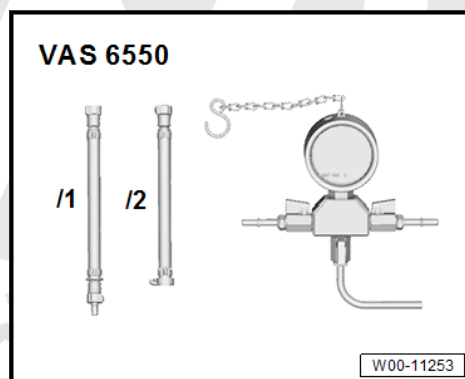
Special tools and workshop equipment required



◆ Hand Vacuum Pump - VAS 6213-



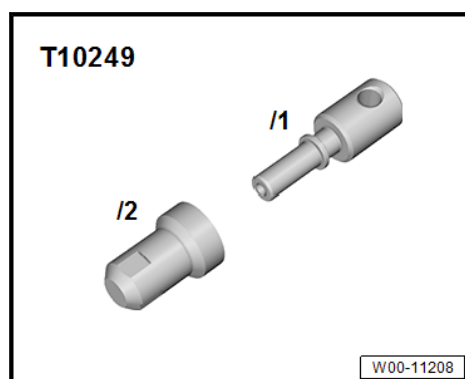
◆ Pressure Tester Kit - VAS 6550-



◆ Pressure Tester Kit - Adapter Set - VAS 6550/3-



◆ Sealing Tool - T10249-

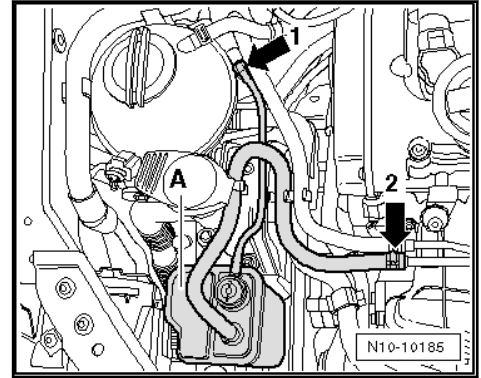


Test Conditions

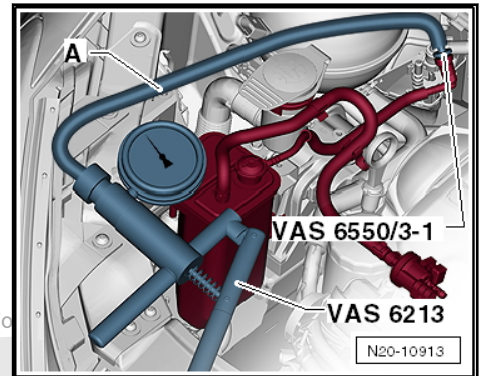
- The ignition must be off.

Test Sequence

- Remove the breather line -1-. Disconnect the connector couplings. Refer to ➤ [“4 Connector Couplings”, page 52](#) .



- Connect the Hand Vacuum Pump - VAS 6213- to the vent line to the EVAP canister as shown.
- Secure the Pressure Tester Kit - Adapter Set - Fitting - VAS 6550/3-1- on the vent line.
- Connect the Hand Vacuum Pump - VAS 6213- and the Pressure Tester Kit - Adapter Set - Fitting - VAS 6550/3-1- using a commercially available hose -A-.



- Set the slide ring -1- on the Hand Vacuum Pump - VAS 6213- to position -B- for “pressure”.
- Press the Hand Vacuum Pump - VAS 6213- several times.
- Pressure must increase.

If the pressure does not increase:

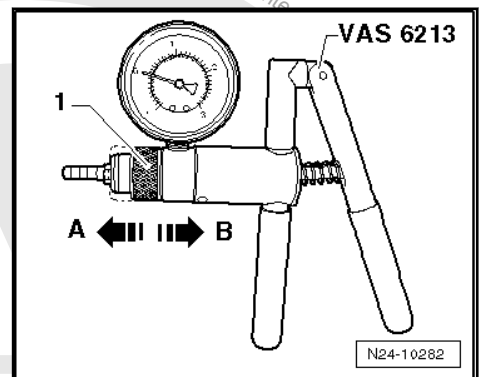
- Check the hose to the EVAP Canister Purge Regulator Valve 1 - N80- for leaks and damage and replace it if necessary.

If no error can be found:

- Check the EVAP Canister Purge Regulator Valve 1 - N80- using the ➤ Vehicle diagnostic tester. Replace if necessary.

If the pressure increases:

- Check the vent connection. Proceed as follows for this procedure.

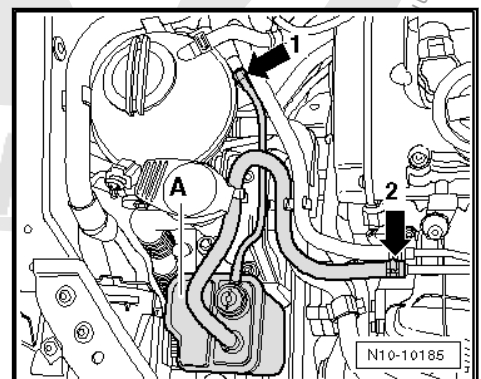


Checking the ventilation connection:



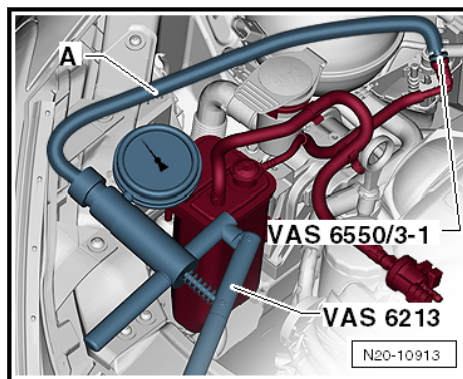
Note

- ◆ This step serves to check the ventilation connection on the EVAP canister.
- ◆ If the ventilation connection functions correctly, then no vacuum will build.
- Remove the breather line -1-. Disconnect the connector couplings. Refer to ➤ [“4 Connector Couplings”, page 52](#) .





- Connect the Hand Vacuum Pump - VAS 6213- to the vent line to the EVAP canister as shown.
- Secure the Pressure Tester Kit - Adapter Set - Fitting - VAS 6550/3-1- on the vent line.
- Connect the Hand Vacuum Pump - VAS 6213- and the Pressure Tester Kit - Adapter Set - Fitting - VAS 6550/3-1- using a commercially available hose -A-.



- Set the slide ring -1- on the Hand Vacuum Pump - VAS 6213- in position -A- for “vacuum”.
- Press the Hand Vacuum Pump - VAS 6213- several times.
- No vacuum should be built up.

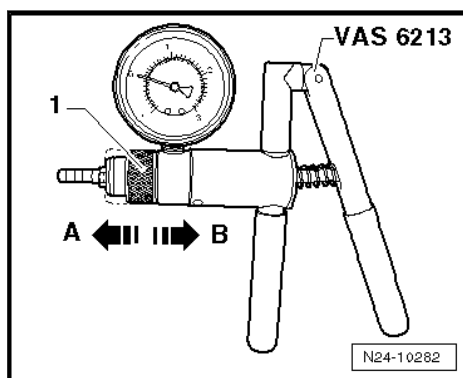
If a vacuum forms:

- Check the vent hose at the EVAP canister (refer to ➤ [“6.2 Overview - EVAP System”, page 62](#)) for contamination and clean if necessary.

If no vacuum forms:

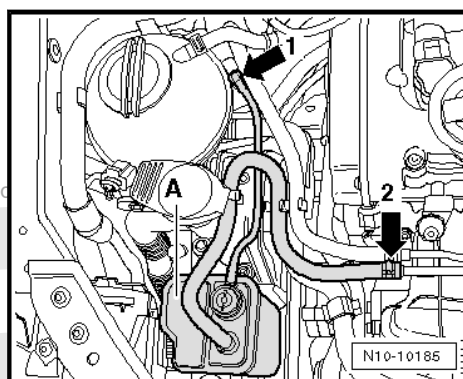
The vent connection is OK.

- Check the vent lines and EVAP canister by performing the following tests ➤ [page 72](#) .

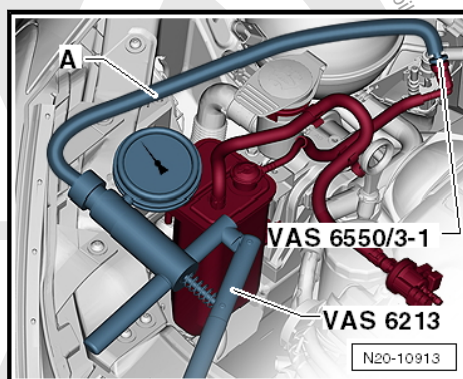


Checking vent lines in the engine compartment and the EVAP canister:

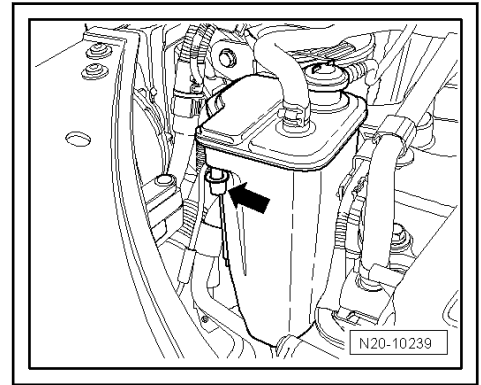
- Remove the breather line -1-. Disconnect the connector couplings. Refer to ➤ [“4 Connector Couplings”, page 52](#) .



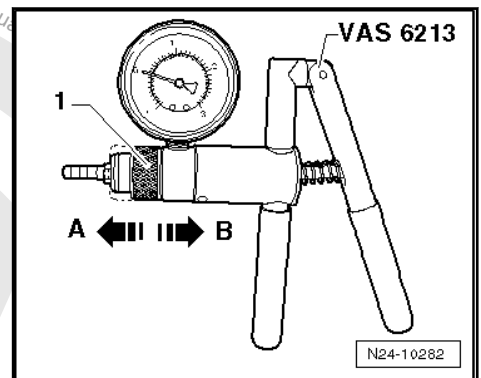
- Connect the Hand Vacuum Pump - VAS 6213- to the vent line to the EVAP canister as shown.
- Secure the Pressure Tester Kit - Adapter Set - Fitting - VAS 6550/3-1- on the vent line.
- Connect the Hand Vacuum Pump - VAS 6213- and the Pressure Tester Kit - Adapter Set - Fitting - VAS 6550/3-1- using a commercially available hose -A-.



- Seal the vent hose -arrow-.



- Set the slide ring -1- on the Hand Vacuum Pump - VAS 6213- in position -A- for "vacuum".
- Press the Hand Vacuum Pump - VAS 6213- several times.
- A vacuum must form.



If no vacuum forms:

- Clamp off the hose between the EVAP canister -1- and EVAP Canister Purge Regulator Valve 1 - N80- -5-.
- Press the vacuum pump again several times.

Vacuum:

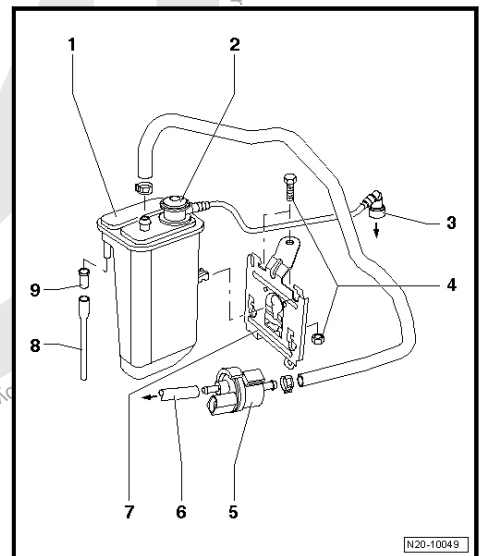
The EVAP canister and the line -3- are OK:

- Check the hose between the EVAP canister and the EVAP Canister Purge Regulator Valve 1 - N80- for leaks and replace if necessary.

If no vacuum forms:

- Check the EVAP canister for leaks and damage and replace if necessary.
- Check the line to the EVAP Canister Purge Regulator Valve 1 - N80- for leaks and damage.

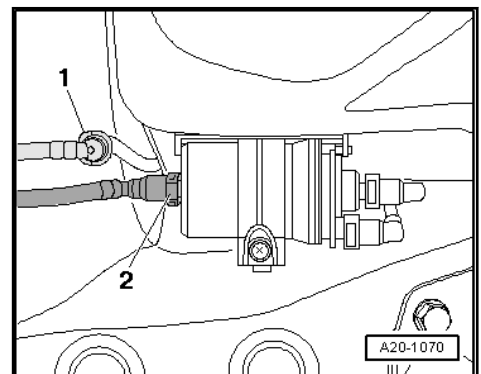
If no error can be found:



Vehicles with externally installed fuel filter:

Check the vent line to the coupling point on the underbody.

- Release and remove the breather line -1-. Disconnect the connector couplings. Refer to ➤ ["4 Connector Couplings"](#), [page 52](#) .
- Seal the vent line -1- with the Sealing Tool - T10249- .





Continuation for All Vehicles:

- Connect the Hand Vacuum Pump - VAS 6213- with the Pressure Tester Kit - Adapter Set - Hose 2 - VAS 6550/3-2- to the line to the fuel tank.
- Press the vacuum pump several times.
- A vacuum must form.

If no vacuum forms:

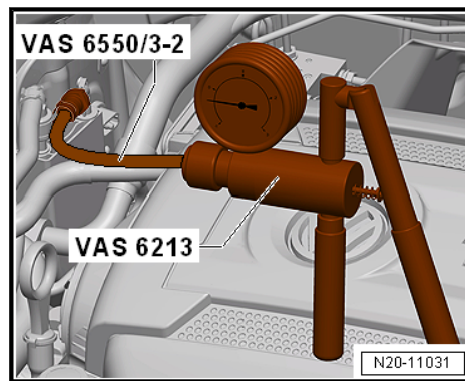
- Check the vent line to the coupling point on the underbody and replace if necessary.

If a vacuum forms:

- Check the vent line between the coupling point on the underbody and the fuel tank for leaks and damage.

If no error can be found:

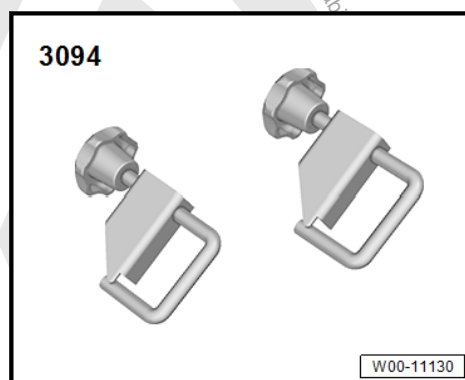
- Check the fuel tank for leaks and damage.



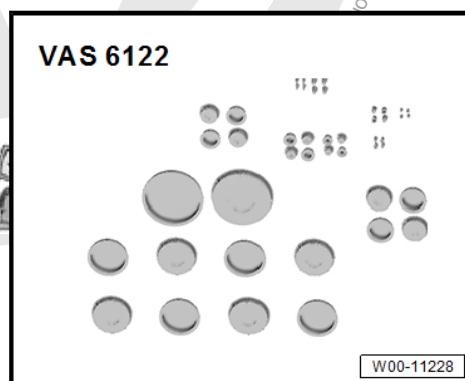
6.7 Fuel System, Checking for Leaks

Special tools and workshop equipment required

- ◆ Hose Clamps - Up To 25 mm - 3094-



- ◆ Engine Bung Set - VAS 6122-



- ◆ Evaporative Emissions Tester - KLI 9210-
- ◆ Evaporative Emissions Tester - Adapter 55 - KLI 9210/55-1-
- ◆ Vehicle Diagnostic Tester

Test conditions:

- Guided Fault Finding was performed using the Vehicle Diagnostic Tester .
- The Leak Detection Pump - V144- detected a leak.



Connector Coupling	Color Coding on Connector Coupling
Fuel supply	Black
Fuel Return Line	Blue
Ventilation	White
Vacuum	Green

Procedure

- Remove the right rear wheel.
- Remove the right rear wheel housing liner. Refer to ⇒ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Overview - Rear Wheel Housing Liner .
- Release and remove the breather line -2-. Disconnect the connector couplings. Refer to ⇒ [“4 Connector Couplings”](#), [page 52](#) .

Evaporative Emissions Tester - KLI 9210- Preparation:

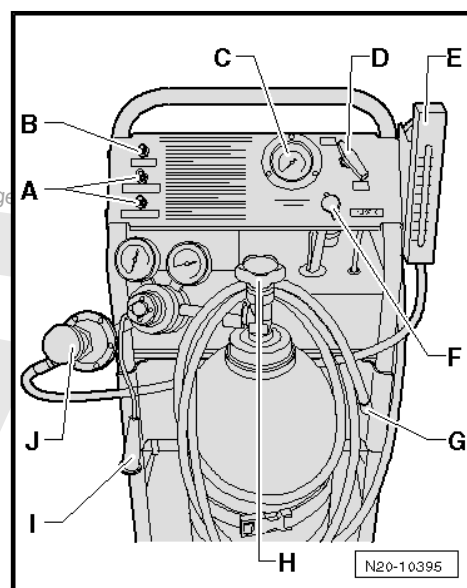
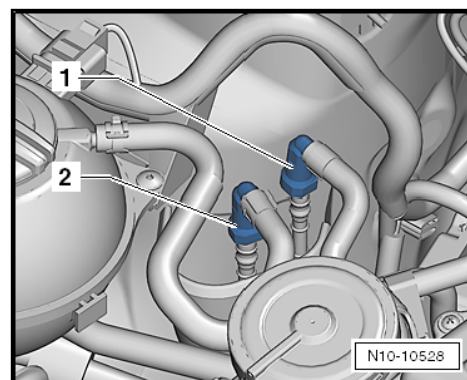


Note

Depending on the version, the appearance of the Evaporative Emissions Tester - KLI 9210- may vary.

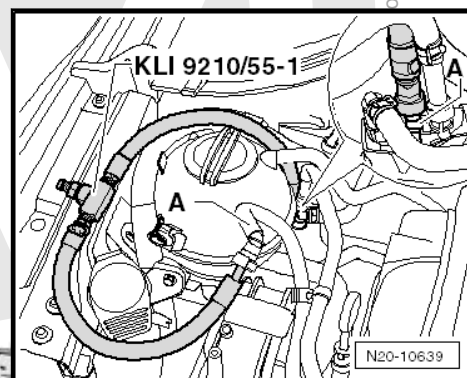
- Check the Evaporative Emissions Tester - KLI 9210- to make sure there is enough fluid in the smoke generator.
- Set the valve -D- to “Hold”.
- Open the nitrogen bottle -H-.
- Connect the measuring hose -G- to the self-test connection -B-.
- Set the valve -D- to “Test”.
- Using the pressure reducer -J-, adjust the pressure to 25 mbar (0.36 psi) (10 in. H₂O).
- Set the valve -D- to “Hold”.
- The pressure must now be maintained for a minimum of two minutes.

If the pressure is not maintained, check the tester.



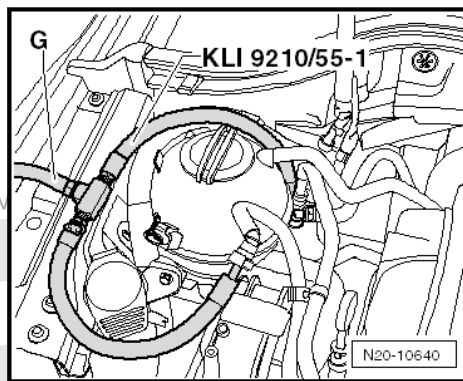
Fuel System, Checking for Leaks:

- Connect the Evaporative Emissions Tester - Adapter 55 - KLI 9210/55-1- to the vent lines -A- “white color coding” as shown. Refer to ⇒ [page 75](#) .

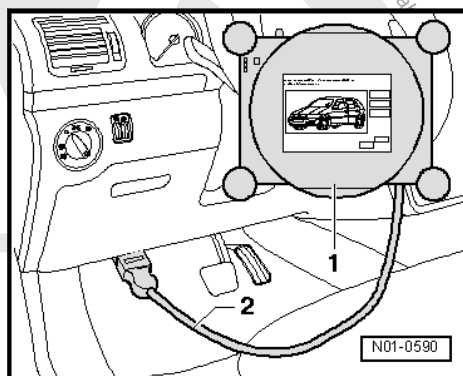




- Connect the measuring hose -G- from the Evaporative Emissions Tester - KLI 9210- to the Evaporative Emissions Tester - Adapter 55 - KLI9210/55-1 - .



- Connect the Vehicle Diagnostic Tester to the vehicle.
- The procedure changed when the electrical Leak Detection Pump - V144- was introduced.
- Switch the ignition on.
 - Select the **Guided Functions** mode on the Vehicle Diagnostic Tester .
 - Select the **Check tank ventilation system for leaks** guided function.
 - Start the test.
 - Watch the pressure gauge on the Evaporative Emissions Tester - KLI 9210- during the check.
 - The Leak Detection Pump - V144- must pump the fuel system pressure up to at least 25 mbar (0.36 psi) (10 in. H₂O).



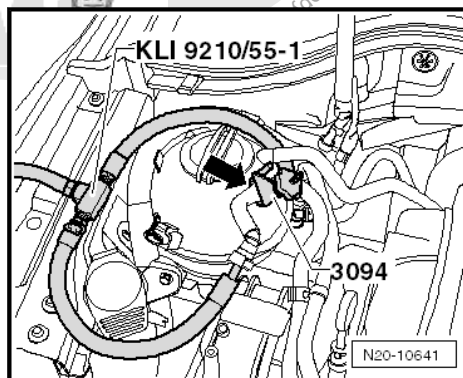
The minimum pressure is not reached and the pressure reached decreases immediately:

- Clamp off the hose to the EVAP Canister Purge Regulator Valve 1 - N80- with a hose clamp -arrow-.
- Repeat the test. If the minimum pressure is now reached, replace the EVAP Canister Purge Regulator Valve 1 - N80- .

The minimum pressure is not reached again or the pressure reached decreases immediately:

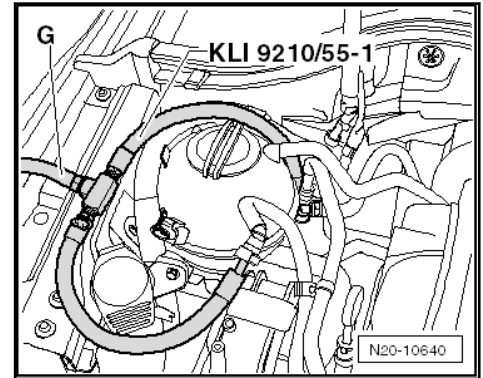
- There is a leak in the fuel system: perform the test “Check for Leak In Fuel System”. Refer to ➤ [page 76](#) .

Fuel System Leak Detection





- The procedure "Fuel System, Checking for Leaks" is performed. Refer to ➤ ["6.7 Fuel System, Checking for Leaks", page 74](#) .
- The Evaporative Emissions Tester - KLI 9210- is connected to the vehicle with the Evaporative Emissions Tester - Adapter 55-1 - KLI 9210/55-1- .
- Connect the Evaporative Emissions Tester - KLI 9210- to the vehicle battery.
- Remove the right rear wheel housing liner. Refer to ➤ Body Exterior; Rep. Gr. 66 ; Wheel Housing Liner; Rear Wheel Housing Liner, Removing and Installing .
- Remove the connecting hose ➤ [Item 2 \(page 67\)](#) from the air filter to the Leak Detection Pump - V144- on the Leak Detection Pump - V144- .
- Seal the opening on the Leak Detection Pump - V144- ➤ [Item 9 \(page 67\)](#) with a suitable plug from the Engine Bung Set - VAS 6122- .
- Set the valve -D- to "Test". The fuel system is now filled.
- Watch the pressure gauge -C- and the flow meter -E-. The fuel system is filled if the flow rate decreases and the pressure increases to 10 in. H₂O (25 mbar (0.36 psi)).
- After the pressure has stabilized, set the valve -D- to "Hold".
- The pressure must not drop below 8 in. H₂O (20 mbar (0.29 psi)) after five minutes.

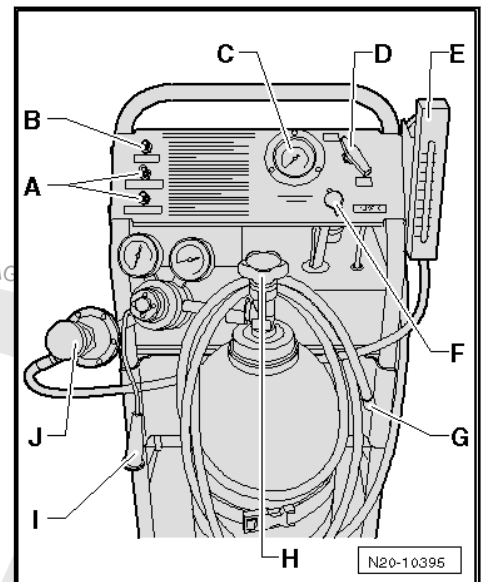


If the pressure drops or if no pressure develops, then locate the leak as follows:

- Fill the fuel system with smoke. Set the valve -D- to "Test" again.
- While the fuel system is being filled, press smoke generator button -I- for approximately one minute.

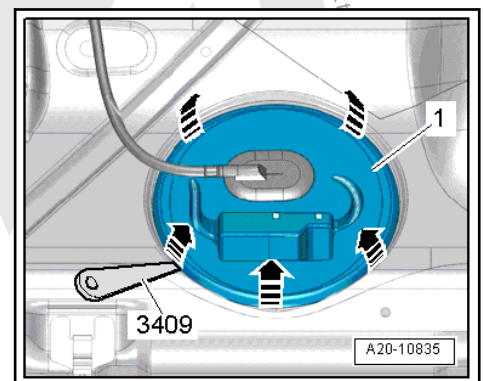
The fuel system is now under pressure and filled with smoke.

- Check all the lines, hoses and the fuel filler cap for escaping smoke.



Note

- ◆ *Illuminate components and hoses with a strong flood light, the smoke will be more visible.*
- ◆ *An ultrasonic sensor tester or commercially available leak spray can also be used to locate leaks.*
- ◆ *Depending on how long fault finding lasts, the smoke generator button may need to be pressed again. This ensures there is enough smoke present in the fuel system.*
- ◆ *It is necessary to open the installation opening in the vehicle interior -1- to check the flange on the fuel pump and fuel filter.*



- Replace any leaking hoses or components.

After completing the work, perform the "Check EVAP canister system for leaks" guided function with the Vehicle Diagnostic Tester .



7 Accelerator Mechanism

⇒ [“7.1 Overview - Accelerator Pedal Module”, page 78](#)

⇒ [“7.2 Accelerator Pedal Position Sensors G79 / G185 , Removing and Installing”, page 78](#)

7.1 Overview - Accelerator Pedal Module

1 - Connector

- ❑ Black 6-pin

2 - Accelerator Pedal Module - GX2-

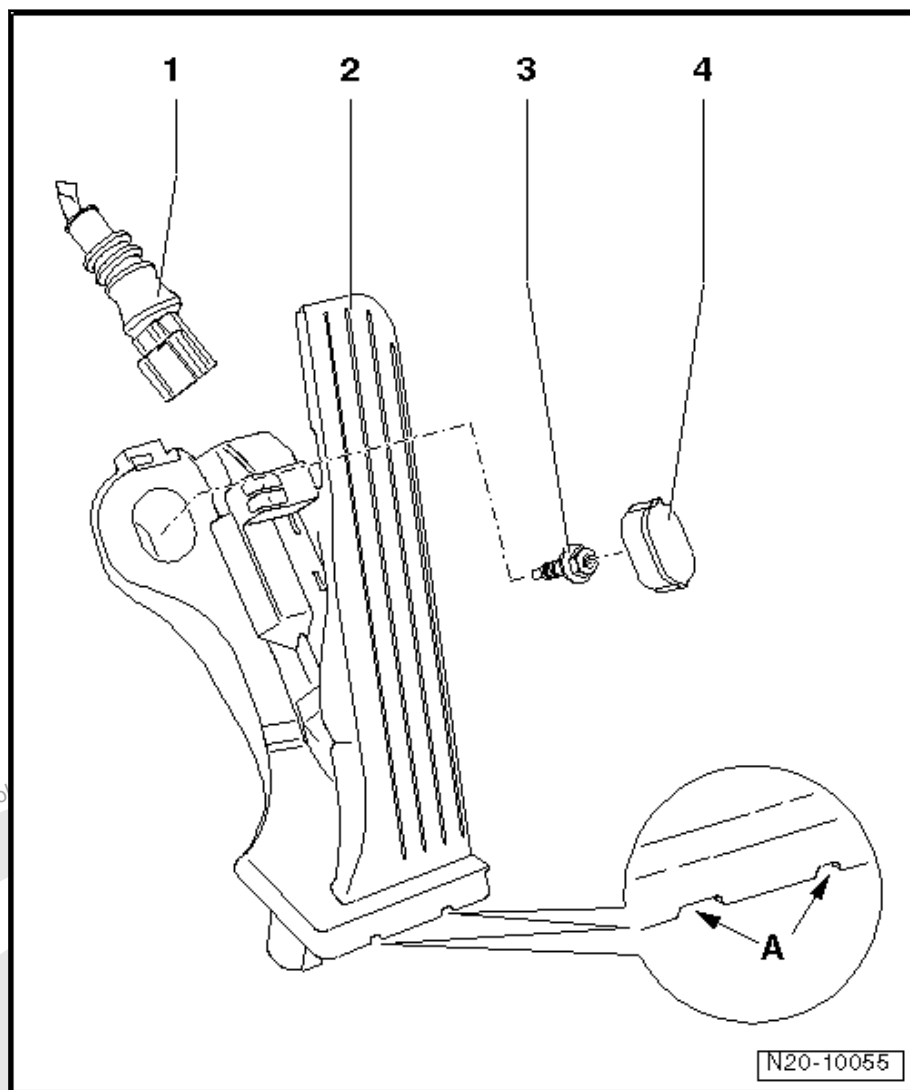
Contains:

- ◆ Accelerator Pedal Position Sensor - G79-
- ◆ Accelerator Pedal Position Sensor 2 - G185-
 - ❑ Openings -A- for the release tool
 - ❑ Removing and Installing. Refer to ⇒ [“7.2 Accelerator Pedal Position Sensors G79 / G185 , Removing and Installing”, page 78](#) .

3 - Bolt

- ❑ 10 Nm

4 - Cap

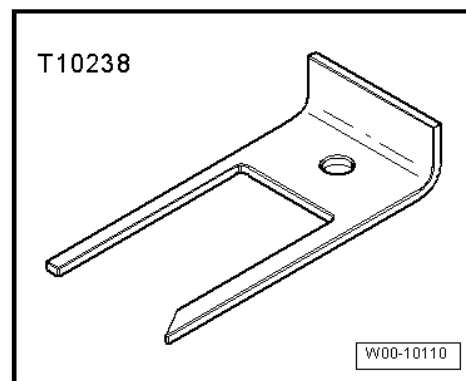


7.2 Accelerator Pedal Position Sensors - G79- / -G185- , Removing and Installing

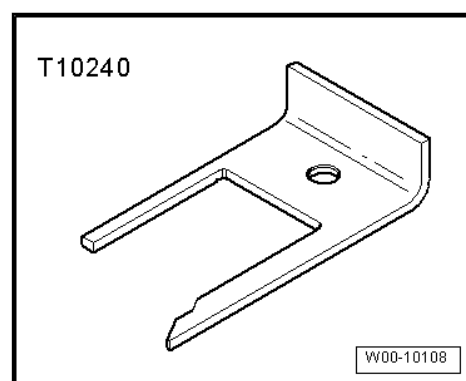
Special tools and workshop equipment required



◆ Accelerator Pedal Module Release Tool - T10238-

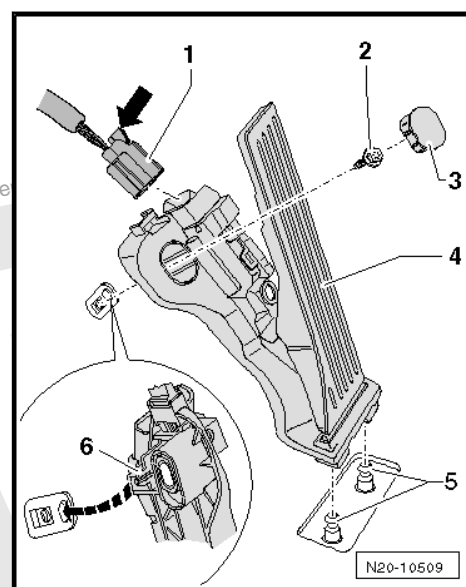


◆ Release Tool - T10240- (for RHD vehicles)



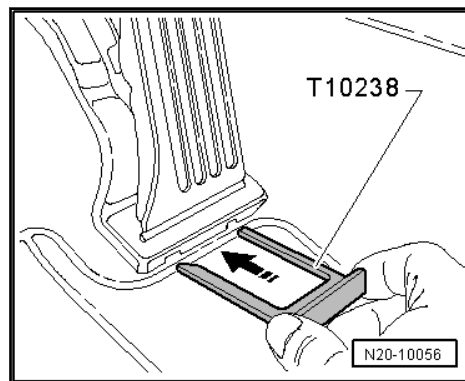
Removing

- Pry off the cap -3- using a screwdriver.
- Remove the bolt -2-.
- Disconnect the connector -1-.





- Insert the Accelerator Pedal Module Release Tool - T10238- / Release Tool - T10240- all the way into the intended openings, as shown.
- Remove the accelerator pedal module.

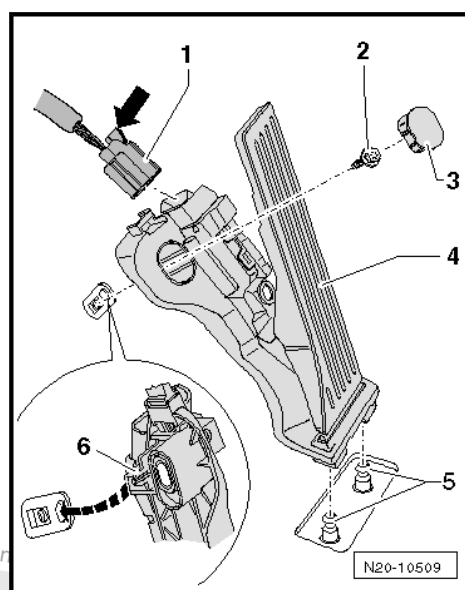


Installing

- Connect the connector -1- to the accelerator pedal module -4-.
- Push the accelerator pedal module onto the retaining pin -5-.
- Insert the centering pin -6- into the hole on the underbody.
- Secure the accelerator pedal module with the bolt -2-.
- Install the cap -3-.

Tightening Specifications

- ◆ Refer to ⇒ [“7.1 Overview - Accelerator Pedal Module”, page 78](#)





8 Fuel Pump

⇒ ["8.1 Transfer Fuel Pump G6 , Checking", page 81](#)

8.1 Transfer Fuel Pump - G6- , Checking

⇒ ["8.1.1 Fuel Pump, Checking Function and Power Supply, Vehicles with Fuel Pump Control Module J538 ", page 81](#)

⇒ ["8.1.2 Fuel Pump, Checking Function and Power Supply, Vehicles without Fuel Pump Control Module J538 ", page 85](#)

⇒ ["8.1.3 Fuel Pressure, Checking, Vehicles with Externally Installed Fuel Filter", page 89](#)

⇒ ["8.1.4 Fuel Pressure, Checking, Vehicles with Fuel Filter in Fuel Delivery Unit Flange", page 95](#)

⇒ ["8.1.5 Residual Pressure and Fuel Pressure, Checking, Vehicles with Externally Installed Fuel Filter", page 99](#)

⇒ ["8.1.6 Residual Pressure, Checking, Vehicles with Fuel Filter in Fuel Delivery Unit Flange", page 104](#)

⇒ ["8.1.7 Fuel Delivery Rate, Checking, Vehicles with Externally Installed Fuel Filter", page 108](#)

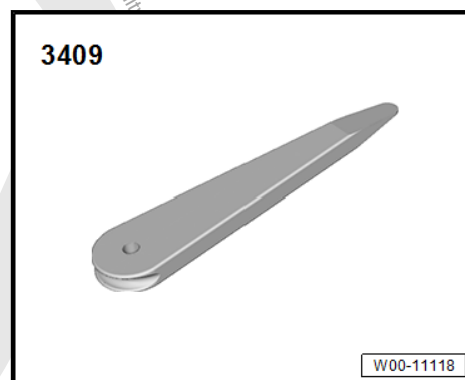
⇒ ["8.1.8 Fuel Delivery Rate, Checking, Vehicles with Fuel Filter in Fuel Delivery Unit Flange", page 117](#)

⇒ ["8.1.9 Current Draw, Checking", page 125](#)

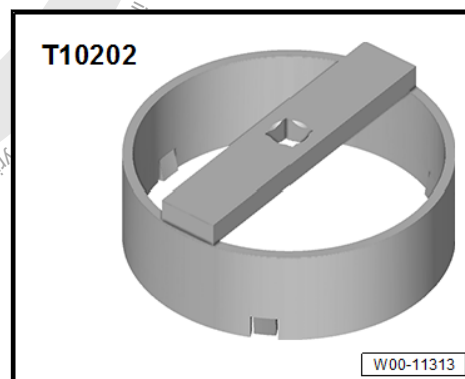
8.1.1 Fuel Pump, Checking Function and Power Supply, Vehicles with Fuel Pump Control Module - J538-

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-



- ◆ Wrench - Fuel Sending Unit - T10202-

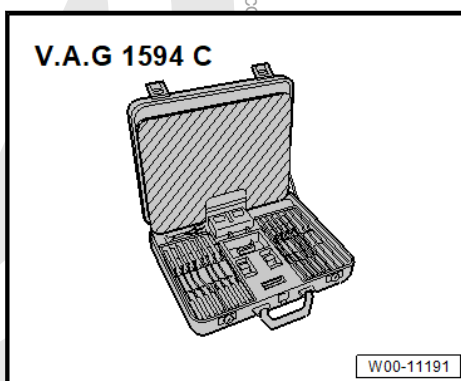




- ♦ Multimeter, for example Analog/Digital Multimeter - FLU83III-



- ♦ Connector Test Set - V.A.G 1594D-



- ♦ Vehicle Diagnostic Tester

Test conditions:

- The battery voltage must be at least 11.5 V. Charge if necessary. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Charging .
- Fuse for Fuel Pump Control Module - J538- is OK. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- Fuel Pump Control Module - J538- is OK. Use the ⇒ Vehicle diagnostic tester.

Test sequence:

- Pay attention to the safety precautions. Refer to ⇒ [“1 Safety Precautions”, page 1](#) .
- Follow the guidelines for clean working conditions. Refer to ⇒ [“3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System”, page 6](#) .



- Connect the Vehicle Diagnostic Tester -1- as follows:
- Connect the diagnostic cable connector -2- to the diagnostic connection inside the driver footwell.
- Switch the ignition on.
- In OBD, select fuel pump output diagnostic test mode.

The fuel pump must now accelerate slowly up to the maximum RPM.



Note

- ◆ *The output diagnostic test mode checks the fuel pump function.*
- ◆ *The fuel pump is now activated.*
- ◆ *The fuel pump runs very quietly.*
- ◆ *If the output diagnostic test mode is performed several times in succession, it may be necessary to briefly start the motor before repeating the output diagnostic test mode.*

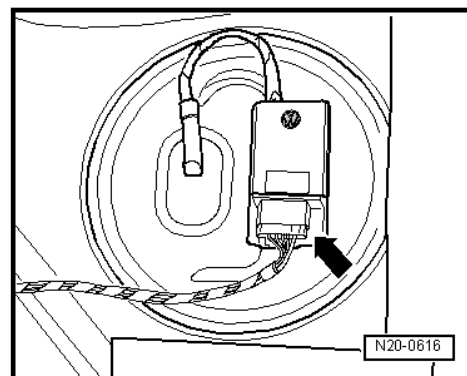
- Switch off the ignition.

If the fuel pump does not start:

- Remove the bench seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Bench Seat / Single Seats, Removing and Installing .
- Pull on the connector on the Fuel Pump Control Module - J538- without pushing the locking mechanism to make sure it is secure. Repeat the fuel pump function test if the connector was not connected correctly. Refer to ⇒ [page 82](#) .

Fuel pump runs without function:

- Release and disconnect the connector from the Fuel Pump Control Module - J538- -arrow-.
- Check the contacts on the connector and on the Fuel Pump Control Module - J538- for damage.

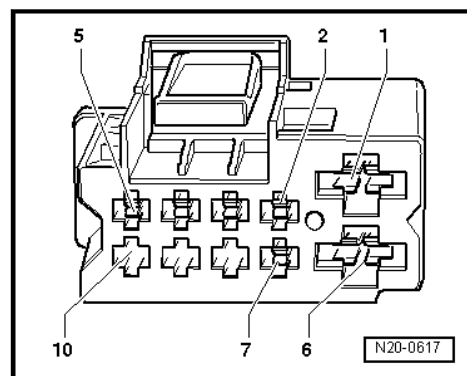


- Check the power supply between contacts -1- and -6- using the Analog/Digital Multimeter - FLU83III- .
- Specified value: approximately battery voltage

Voltage supply not OK:

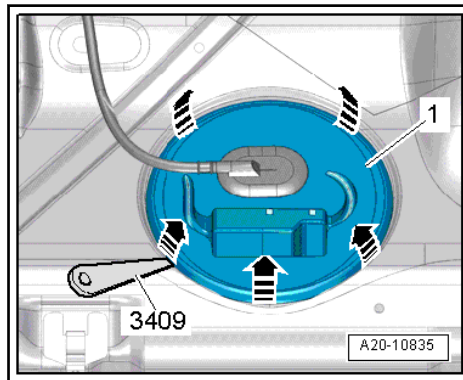
- Locate and repair the open circuit according to the wiring diagram. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

Voltage supply OK:





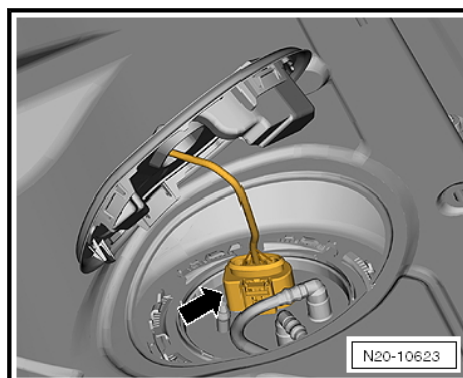
- Unclip the cover -1- at the tabs -arrows- using the Trim Removal Wedge - 3409- .



- Pull on the connector -arrow- without pressing the release to make sure the connection is secure.
- Repeat the fuel pump function test if the connector was not connected correctly. Refer to ➤ [page 82](#) .

Fuel pump runs without function:

- Release and disconnect the connector -arrow-.

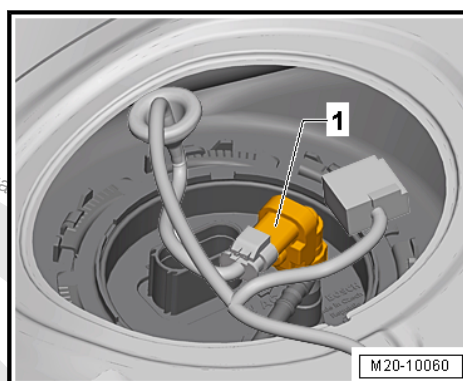


Vehicles with EVAP Canister System Pressure Sensor - G804- :

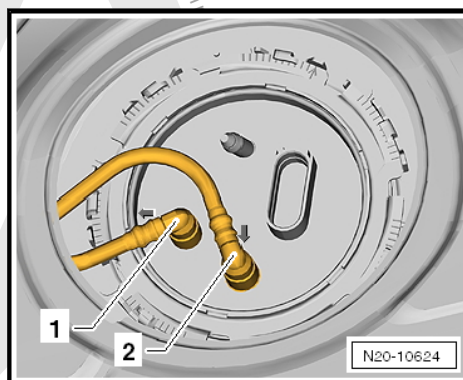
- Release and disconnect the connector from the EVAP Canister System Pressure Sensor - G804- -1-.

Continuation for All Vehicles:

- Check the contacts on the connector and on the fuel delivery unit for damage.
- Check the wiring harness between the Fuel Pump Control Module - J538- and the fuel delivery unit. Refer to ➤ Wiring diagrams, Troubleshooting & Component locations.



- Remove the fuel lines -1- and -2- from the flange. Disconnect the connector couplings. Refer to ➤ ["4 Connector Couplings", page 52](#) .



Caution

The fuel system is under pressure.

Risk of injury from fuel spraying out.

- *Wear protective eyewear.*
- *Wear safety gloves.*
- *Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.*

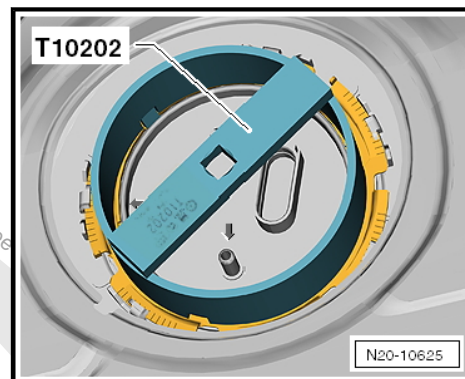
Vehicles with Parking Heater:

- If the vehicle has an auxiliary heater, disconnect the connector and the fuel line for the Metering Pump - V54- .

Continuation for All Vehicles:



- Drain the fuel tank. Refer to ➤ [“1.2 Fuel Tank, Draining”, page 14](#) .
- Open the locking ring using the Wrench - Fuel Sending Unit - T10202- .
- Lift the fuel delivery unit flange.



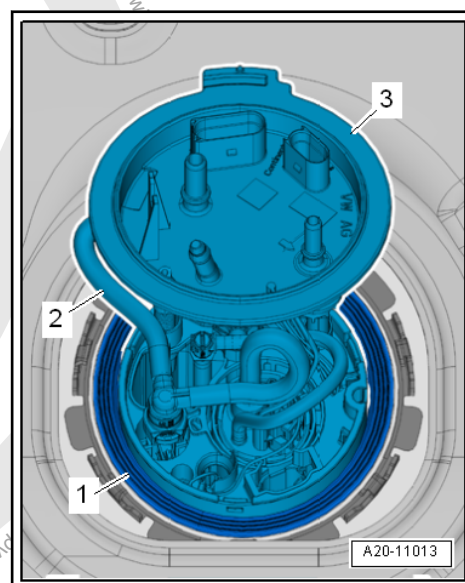
- Lift up the cover -3- for the fuel delivery unit.
- Check if the wiring between the flange and fuel pump is connected.
- Inspect the contacts for damage.

If there are no open circuits found:

- If the fuel pump is faulty, replace the fuel delivery unit. Refer to ➤ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .

Tightening Specifications

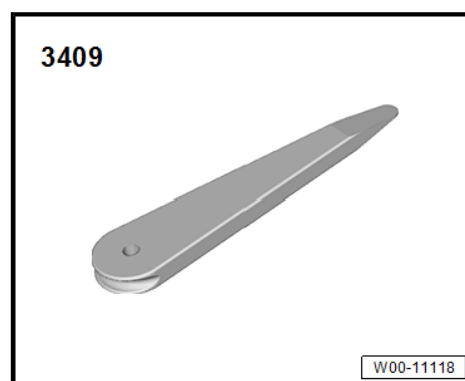
- ◆ Locking Ring. Refer to ➤ [“2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor”, page 30](#) .



8.1.2 Fuel Pump, Checking Function and Power Supply, Vehicles without Fuel Pump Control Module - J538-

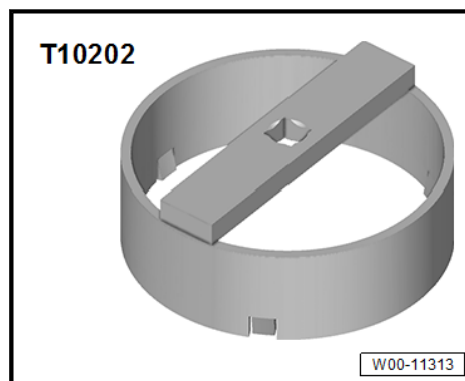
Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-





◆ Wrench - Fuel Sending Unit - T10202-



◆ Multimeter, for example Analog/Digital Multimeter - FLU83III-



◆ Connector Test Set - V.A.G 1594D-



◆ Vehicle Diagnostic Tester

Test conditions:

- The battery voltage must be at least 11.5 V. Charge if necessary. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Charging .
- Fuse for the Transfer Fuel Pump - G6- is OK. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.

Test sequence:



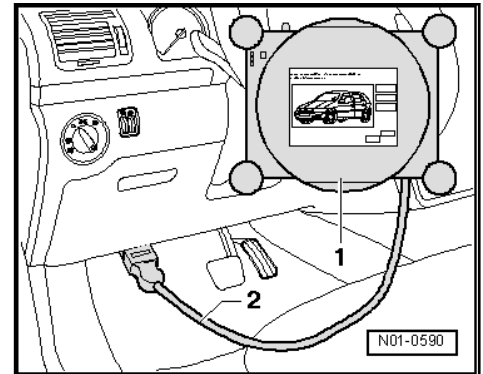
Note

The output diagnostic test mode checks the fuel pump function.

- Pay attention to the safety precautions. Refer to ["1 Safety Precautions", page 1](#) .



- Follow the guidelines for clean working conditions. Refer to ➤ [“3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System”, page 6](#) .
- Connect the Vehicle Diagnostic Tester -1- as follows:
- Connect the diagnostic cable connector -2- to the diagnostic connection inside the driver footwell.
- Switch the ignition on.
- Touch the screen buttons on the display one after the other.
- ◆ OBD
- ◆ Engine electronics
- ◆ Output diagnostic test mode
- ◆ Electric fuel pump
- ◆ ▶
- ◆ Button



The fuel pump must now accelerate slowly up to the maximum RPM.

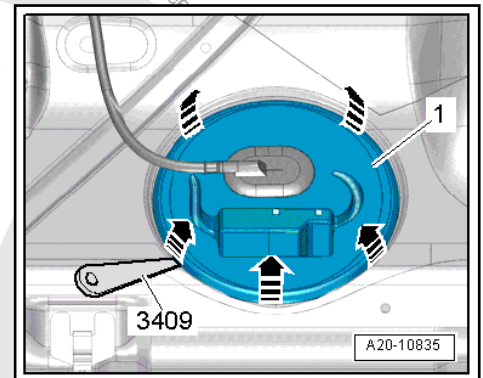


The fuel pump runs very quietly.

- Switch off the ignition.

If the fuel pump does not start:

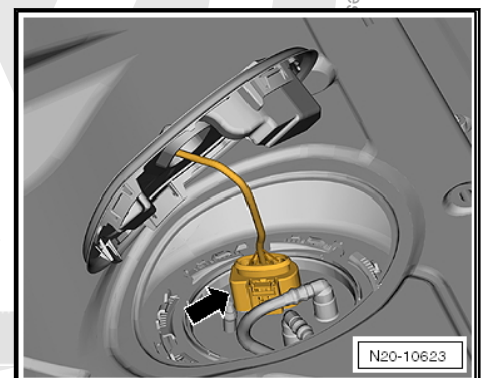
- Fold up the bench seat. Refer to ➤ [Body Interior; Rep. Gr. 72 ; Rear Seats; Bench Seat / Single Seats, Removing and Installing](#) .
- Unclip the cover -1- at the tabs -arrows- using the Trim Removal Wedge - 3409- .



- Pull on the connector -arrow- without pressing the release to make sure the connection is secure.
- Repeat the fuel pump function test if the connector was not connected correctly. Refer to ➤ [page 86](#) .

Fuel pump runs without function:

- Release and disconnect the connector -arrow-.
- Check the contacts on the connector and on the fuel delivery unit for damage.





- Connect the Vehicle Diagnostic Tester - Test Adapter - 5 Pin - VAS 5565- to the connector and to the fuel delivery unit.
- Connect the Analog/Digital Multimeter - FLU83III- to the wires -1- and -5- on the Vehicle Diagnostic Tester - Test Adapter - 5 Pin - VAS 5565- .
- Re-initiate the output diagnostic test mode and measure the voltage on the fuel pump. Refer to ➤ [page 86](#) .
- Specified value: approximately battery voltage

If the specified value is not obtained:

- Locate and repair the open circuit according to the wiring diagram. Refer to ➤ Wiring diagrams, Troubleshooting & Component locations.

If the specified value is obtained:

- Remove the fuel lines -1- and -2- from the flange. Disconnect the connector couplings. Refer to ➤ [“4 Connector Couplings”, page 52](#) .

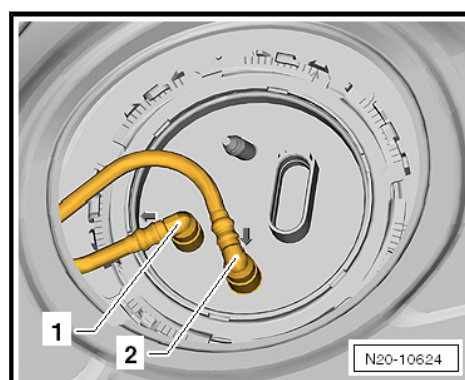
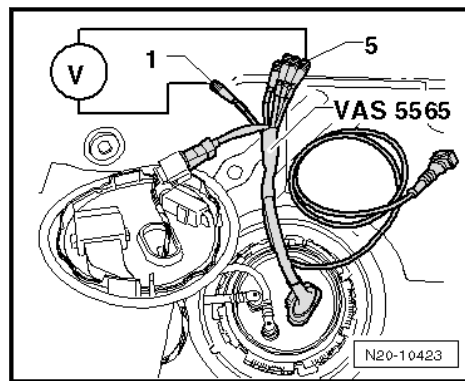


Caution

The fuel system is under pressure.

Risk of injury from fuel spraying out.

- *Wear protective eyewear.*
- *Wear safety gloves.*
- *Reduce the pressure; place clean cloths around the connection point and carefully open the connection point.*

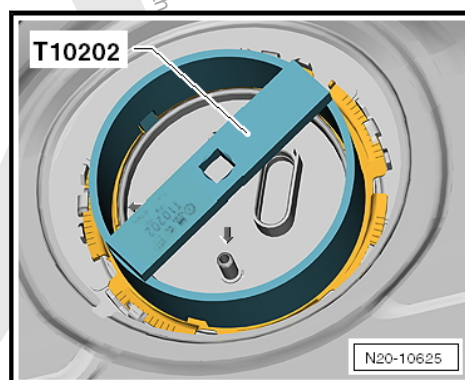


Vehicles with Parking Heater:

- If the vehicle has an auxiliary heater, disconnect the connector and the fuel line for the Metering Pump - V54- . Disconnect the connector couplings. Refer to ➤ [“4 Connector Couplings”, page 52](#) .

Continuation for All Vehicles:

- Drain the fuel tank. Refer to ➤ [“1.2 Fuel Tank, Draining”, page 14](#) .
- Open the locking ring using the Wrench - Fuel Sending Unit - T10202- .





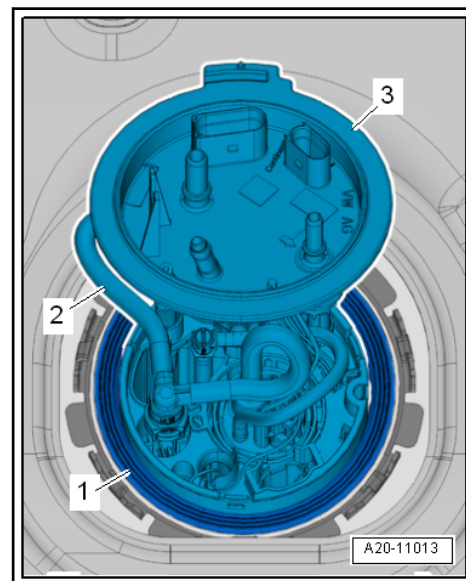
- Lift up the cover -3- for the fuel delivery unit.
- Check if the wiring between the flange and fuel pump is connected.
- Inspect the contacts for damage.

If there are no open circuits found:

- If the fuel pump is faulty, replace the fuel delivery unit. Refer to ➤ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .

Tightening Specifications

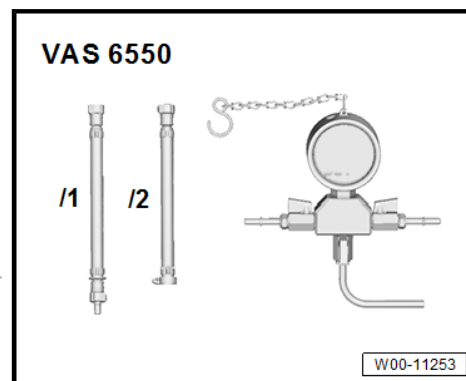
- ◆ Locking Ring. Refer to ➤ [“2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor”, page 30](#) .



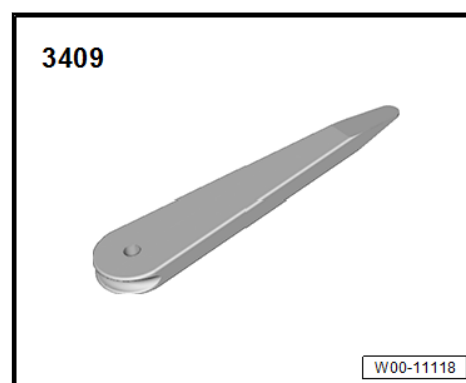
8.1.3 Fuel Pressure, Checking, Vehicles with Externally Installed Fuel Filter

Special tools and workshop equipment required

- ◆ Pressure Tester Kit - VAS 6550-



- ◆ Trim Removal Wedge - 3409-





◆ Pressure Tester Kit - Adapter Set - VAS 6550/3-



◆ Pressure Tester Kit - Adapter Set - Hose 3 - VAS 6550/3-3-

◆ Pressure Tester Kit - Adapter Set - Hose 4 - VAS 6550/3-4-

◆ Vehicle Diagnostic Tester



Caution

The fuel system is under pressure.

Risk of injury from fuel spraying out.

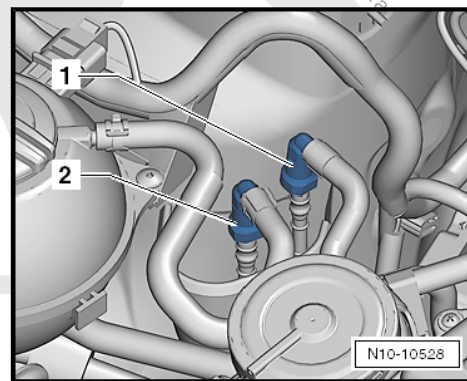
- ***Wear protective eyewear.***
- ***Wear safety gloves.***
- ***Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.***



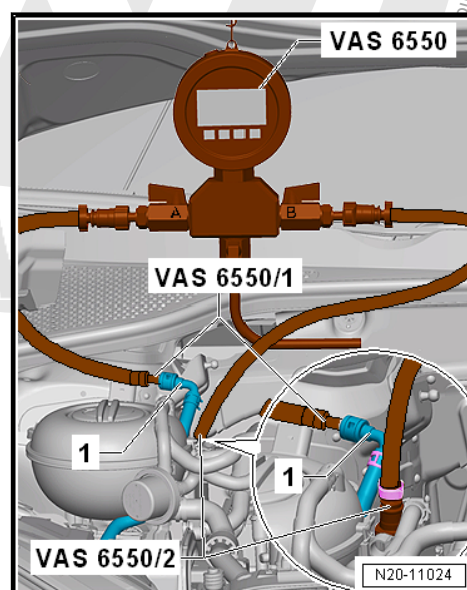
Note

- ◆ ***The connector couplings must »audibly« engage when locking.***
- ◆ ***Note the color coding when installing the connector coupling ⇒ [page 52](#) !***
- ◆ ***Pull on the connector coupling to check for secure fit.***
- ◆ ***Disconnect the connector couplings. Refer to ⇒ ["4 Connector Couplings", page 52](#) .***
- Power supply is OK.
- Pay attention to the safety precautions. Refer to ⇒ ["1 Safety Precautions", page 1](#) .
- Follow the guidelines for clean working conditions. Refer to ⇒ ["3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System", page 6](#) .

- Disconnect the supply line (metal coupling) -1- and wipe up any leaking fuel with a cloth. Disconnect the connector couplings. Refer to ⇒ [“4 Connector Couplings”, page 52](#) .
- Connect the Pressure Tester Kit - Hose 1 - VAS 6550/1- to the connection -A- on the Pressure Tester Kit - VAS 6550- .



- Connect the Pressure Tester Kit - Hose 2 - VAS 6550/2- to the connection -B- on the Pressure Tester Kit - VAS 6550- .
- Connect the Pressure Tester Kit - Hose 1 - VAS 6550/1- to the fuel supply line -1- to the engine.
- Connect the Pressure Tester Kit - Hose 2 - VAS 6550/2- to the fuel line to the fuel tank.
- Pull on the connector couplings to check them for secure fit.

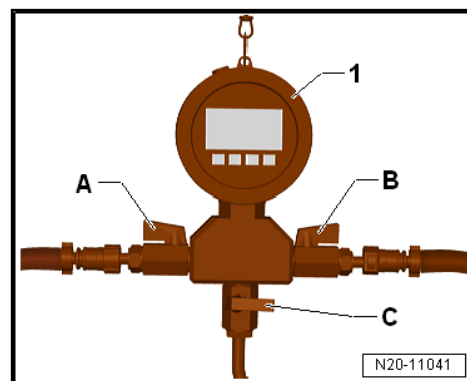


- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.
- The shut-off valves -A- and -B- on the Pressure Tester Kit -1- are open.
- Connect the Vehicle Diagnostic Tester .
- Select the fuel pump output diagnostic test mode in OBD.



Note

- ◆ *The fuel pump is now activated to build up the fuel pressure.*
- ◆ *If the output diagnostic test mode is performed several times in succession, it may be necessary to briefly start the motor before repeating the output diagnostic test mode.*



- Read the fuel pressure on the pressure gauge.

Specified value:

Fuel pressure specified value:	
Vehicles without Fuel Pump Control Module - J538-	3.0 to 4.0 bar (43.51 to 58.02 psi)
Vehicles with Fuel Pump Control Module - J538-	4.0 to 6.6 bar (95.73 psi)



If the fuel pressure is OK, check the residual pressure. Refer to
⇒ [“8.1.6 Residual Pressure, Checking, Vehicles with Fuel Filter
in Fuel Delivery Unit Flange”, page 104](#) .

If the specified value is exceeded:

- Check the return line between the fuel filter and the fuel pump for kinks or blockages.

If no faults are detected:

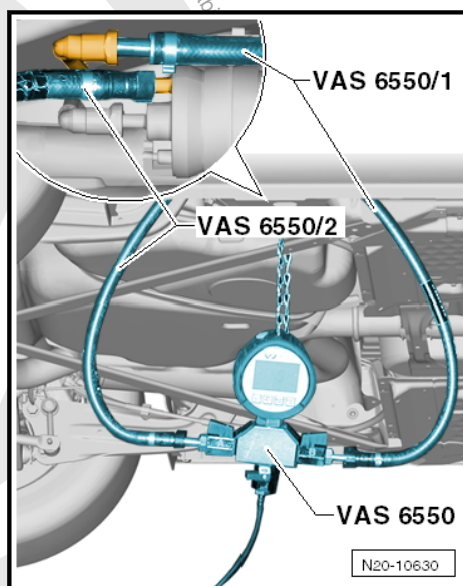
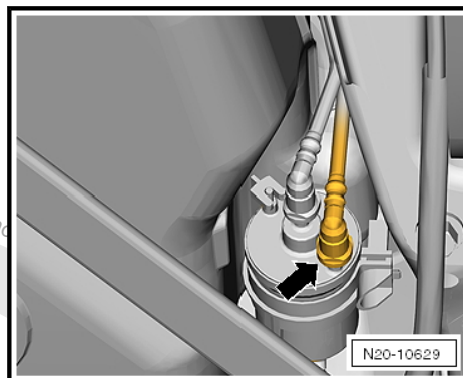
- Pressure relief valve in fuel filter faulty, replace the fuel filter.
Refer to ⇒ [“5.2 Fuel Filter, Removing and Installing”, page 58](#) .

If the specified value is not obtained:

- Check the fuel pressure in front of the fuel filter as follows:

Fuel Pressure, Checking before Fuel Filter:

- Disconnect the fuel supply line -arrow- from the fuel filter.
Disconnect the connector couplings. Refer to ⇒ [“4 Connector Couplings”, page 52](#) .
- Connect the Pressure Tester Kit - Hose 2 - VAS 6550/2- to the connection -A- on the Pressure Tester Kit - VAS 6550- .
- Connect the Pressure Tester Kit - Hose 1 - VAS 6550/1- to the connection -B- on the Pressure Tester Kit - VAS 6550- .
- Connect the Pressure Tester Kit - VAS 6550- between the fuel filter and the fuel supply line using the Pressure Tester Kit - Hose 1 - VAS 6550/1- and the Pressure Tester Kit - Hose 2 - VAS 6550/2- .
- Pull on the connector couplings to check them for secure fit.





- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.
- The shut-off valves -A- and -B- on the Pressure Tester Kit -1- are open.
- Activate the fuel pump using the output diagnostic test mode to build the fuel pressure.
- Repeat the fuel pump output diagnostic test mode to build the fuel pressure. Refer to ➤ [page 91](#) .

If the specified value is obtained:

- Check the fuel line between the fuel filter and the engine compartment for possible kinks or blockages.
- Check the fuel line between the fuel filter and the engine compartment for leaks and damage.

If no faults can be found:

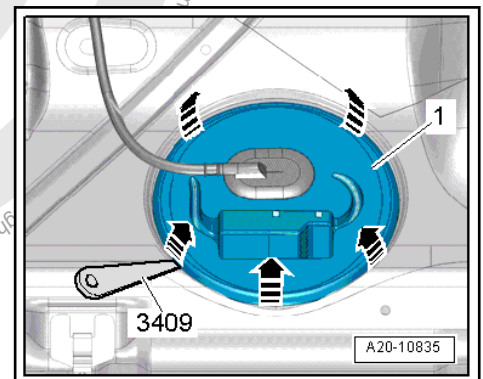
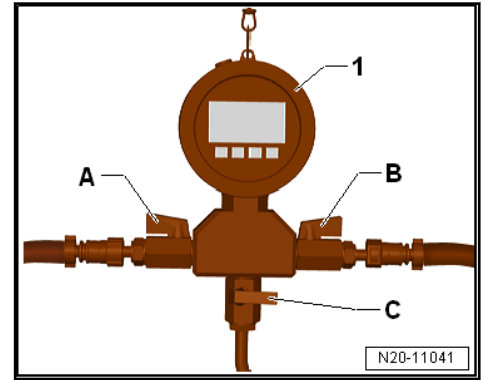
- If the fuel filter is blocked, replace the fuel filter. Refer to ➤ [“5.2 Fuel Filter, Removing and Installing”, page 58](#) .
- Pressure relief valve in fuel filter faulty, replace the fuel filter. Refer to ➤ [“5.2 Fuel Filter, Removing and Installing”, page 58](#) .

If the specified value is not obtained:

Proceed as follows to check the fuel pressure at the fuel delivery unit:

Checking the fuel pressure at the fuel delivery unit:

- Remove the bench seat. Refer to ➤ Body Interior; Rep. Gr. 72 Rear Seats; Bench Seat / Single Seats, Removing and Installing .
- Unclip the right cover -1- at the tabs -arrows- using the Trim Removal Wedge - 3409- .





- Remove the fuel lines -1- from the flange. Disconnect the connector couplings. Refer to ➔ [“4 Connector Couplings”, page 52](#) .

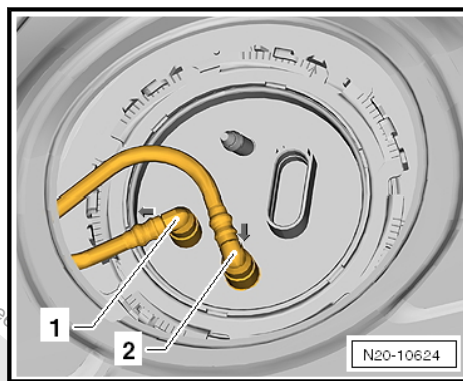


Caution

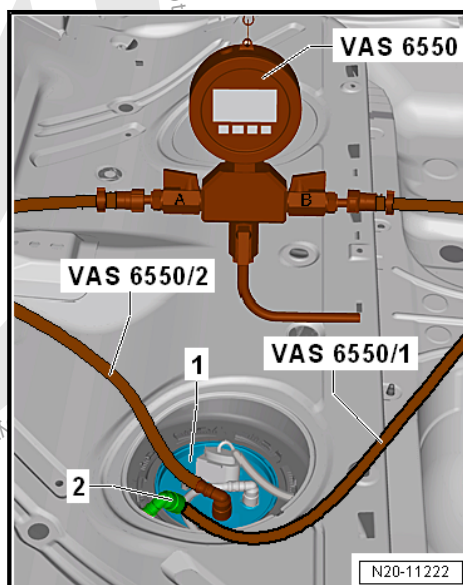
The fuel system is under pressure.

Risk of injury from fuel spraying out.

- *Wear protective eyewear.*
- *Wear safety gloves.*
- *Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.*



- Connect the Pressure Tester Kit - Hose 2 - VAS 6550/2- between the connection -A- on the Pressure Tester Kit - VAS 6550- and the fuel delivery unit -1-.
- Connect the Pressure Tester Kit - Hose 1 - VAS 6550/1- between the connection -B- on the Pressure Tester Kit - VAS 6550- and the fuel supply line -2-.
- Connect the Pressure Tester Kit - VAS 6550- between the fuel delivery unit and the fuel supply line using the Pressure Tester Kit - Hose 1 - VAS 6550/1- and the Pressure Tester Kit - Hose 2 - VAS 6550/2- .
- Pull on the connector couplings to check them for secure fit.



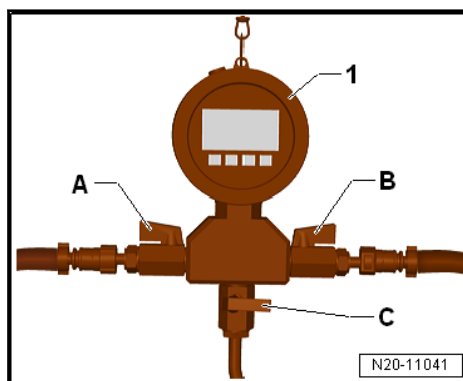
- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.
- The shut-off valves -A- and -B- on the Pressure Tester Kit -1- are open.
- Repeat fuel pump output diagnostic test mode to reduce the fuel pressure. Refer to ➔ [page 91](#) .

If the specified value is obtained:

- Check the fuel lines for possible restrictions (kinks) or blockages.
- Check the fuel line for leaks and damage.

If the specified value is not obtained:

- Remove the fuel delivery unit and inspect it for debris. Refer to ➔ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .





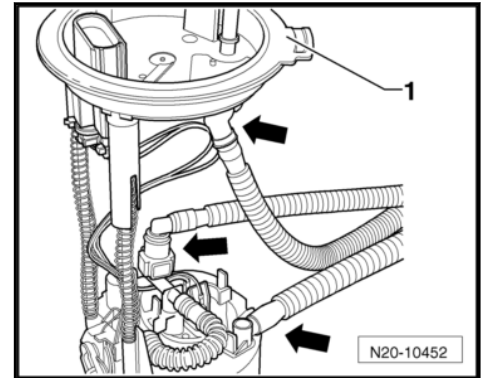
- Make sure all hoses -arrows- are connected.
- Check the fuel lines for possible restrictions (kinks) or blockages.
- Check the fuel lines for leaks and damage.

If no error can be found:

- If the fuel pump is faulty, replace the fuel delivery unit. Refer to ➤ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .

Tightening Specifications

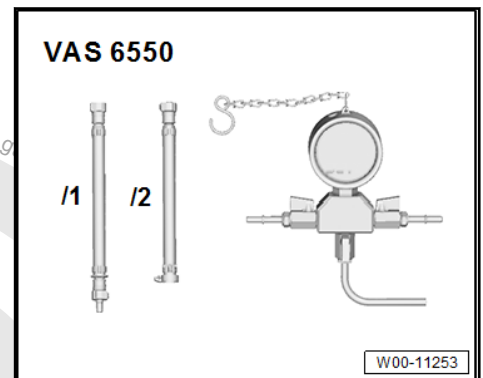
- ◆ Locking Ring. Refer to ➤ [“2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor”, page 30](#) .



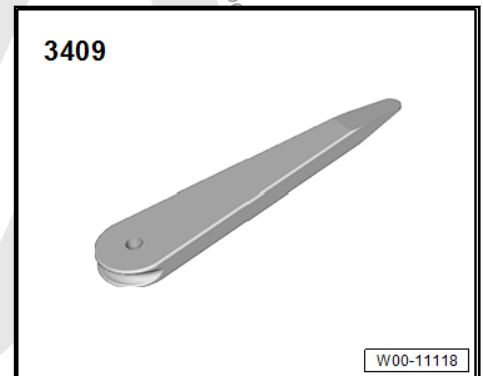
8.1.4 Fuel Pressure, Checking, Vehicles with Fuel Filter in Fuel Delivery Unit Flange

Special tools and workshop equipment required

- ◆ Pressure Tester Kit - VAS 6550-



- ◆ Trim Removal Wedge - 3409-



- ◆ Vehicle Diagnostic Tester



Caution

The fuel system is under pressure.

Risk of injury from fuel spraying out.

- **Wear protective eyewear.**
- **Wear safety gloves.**
- **Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.**

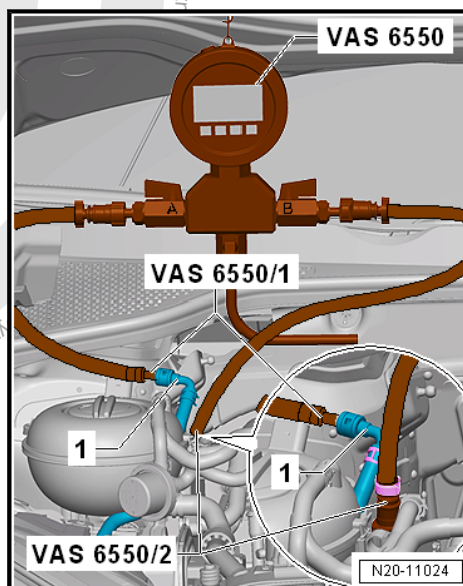
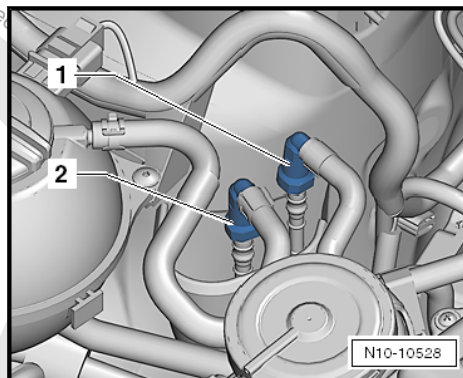


Note

- ♦ The connector couplings must »audibly« engage when locking.
- ♦ Note the color coding when installing the connector coupling
⇒ [page 52](#) !
- ♦ Pull on the connector coupling to check for secure fit.
- ♦ Disconnect the connector couplings. Refer to ⇒ ["4 Connector Couplings", page 52](#).

Test Conditions

- Power supply is OK. Refer to ⇒ ["8.1 Transfer Fuel Pump G6, Checking", page 81](#).
- Pay attention to the safety precautions. Refer to ⇒ ["1 Safety Precautions", page 1](#).
- Follow the guidelines for clean working conditions. Refer to ⇒ ["3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System", page 6](#).
- Disconnect the supply line (metal coupling) -1- and wipe up any leaking fuel with a cloth. Disconnect the connector couplings. Refer to ⇒ ["4 Connector Couplings", page 52](#).
- Collect leaking fuel with a cloth.
- Connect the Pressure Tester Kit - Hose 1 - VAS 6550/1- to the connection -A- on the Pressure Tester Kit - VAS 6550-.
- Connect the Pressure Tester Kit - Hose 2 - VAS 6550/2- to the connection -B- on the Pressure Tester Kit - VAS 6550-.
- Connect the Pressure Tester Kit - Hose 1 - VAS 6550/1- to the fuel supply line -1- to the engine.
- Connect the Pressure Tester Kit - Hose 2 - VAS 6550/2- to the fuel line to the fuel tank.
- Pull on the connector couplings to check them for secure fit.





- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.
- The shut-off valves -A- and -B- on the Pressure Tester Kit -1- are open.
- Connect the Vehicle Diagnostic Tester .
- Select the fuel pump output diagnostic test mode in OBD.

i Note

- ◆ *The fuel pump is now activated to build up the fuel pressure.*
- ◆ *If the output diagnostic test mode is performed several times in succession, it may be necessary to briefly start the motor before repeating the output diagnostic test mode.*

- Read the fuel pressure on the pressure gauge.

Specified Values:

Fuel pressure specified value:	
Vehicles without Fuel Pump Control Module - J538-	3.0 to 4.0 bar (43.51 to 58.02 psi)
Vehicles with Fuel Pump Control Module - J538-	4.0 to 6.0 bar (58.02 to 87.02 psi)

If the fuel pressure is OK, check the residual pressure. Refer to ⇒ [“8.1.6 Residual Pressure, Checking, Vehicles with Fuel Filter in Fuel Delivery Unit Flange”](#), page 104 .

If the specified value is exceeded:

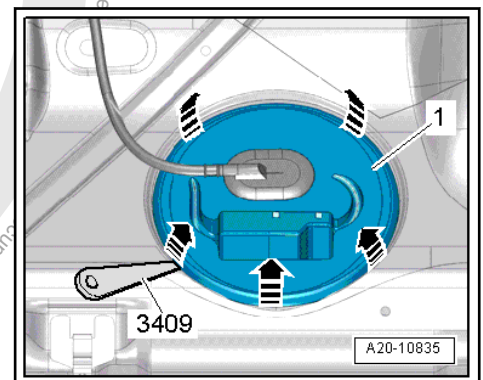
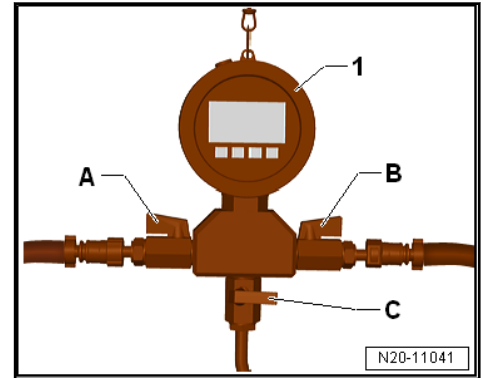
- The pressure relief valve in the fuel delivery unit is faulty.
- Replace the fuel delivery unit. Refer to ⇒ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”](#), page 36 .

If the specified value is not obtained:

Proceed as follows to check the fuel pressure at the fuel delivery unit:

Checking the fuel pressure at the fuel delivery unit:

- Remove the bench seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Bench Seat / Single Seats, Removing and Installing .
- Unclip the right cover -1- at the tabs -arrows- using the Trim Removal Wedge - 3409- .





- Remove the fuel lines -1- from the flange. Disconnect the connector couplings. Refer to ➔ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .

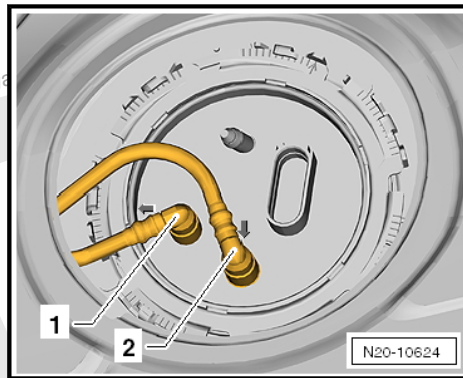


Caution

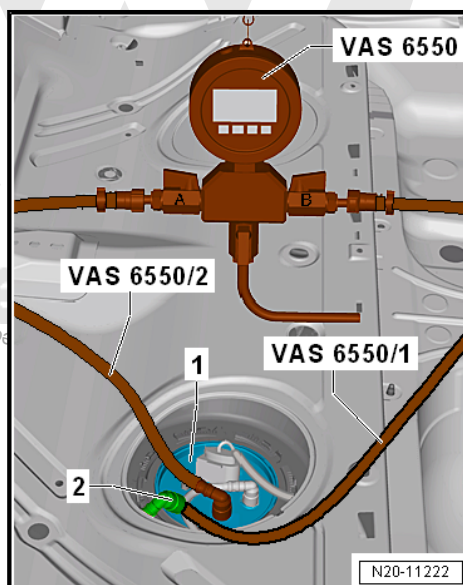
The fuel system is under pressure.

Risk of injury from fuel spraying out.

- *Wear protective eyewear.*
- *Wear safety gloves.*
- *Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.*



- Connect the Pressure Tester Kit - Hose 2 - VAS 6550/2- between the connection -A- on the Pressure Tester Kit - VAS 6550- and the fuel delivery unit -1-.
- Connect the Pressure Tester Kit - Hose 1 - VAS 6550/1- between the connection -B- on the Pressure Tester Kit - VAS 6550- and the fuel supply line -2-.
- Connect the Pressure Tester Kit - VAS 6550- between the fuel delivery unit and the fuel supply line using the Pressure Tester Kit - Hose 1 - VAS 6550/1- and the Pressure Tester Kit - Hose 2 - VAS 6550/2- .
- Pull on the connector couplings to check them for secure fit.



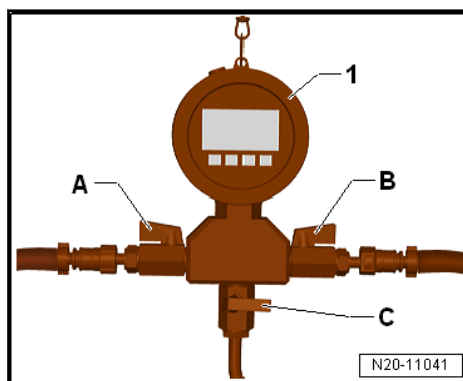
- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.
- The shut-off valves -A- and -B- on the Pressure Tester Kit -1- are open.
- Repeat fuel pump output diagnostic test mode to reduce the fuel pressure. Refer to ➔ [page 97](#) .

If the specified value is obtained:

- Check the fuel lines for possible restrictions (kinks) or blockages.
- Check the fuel line for leaks and damage.

If the specified value is not obtained:

- Remove the fuel delivery unit and inspect it for debris. Refer to ➔ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .





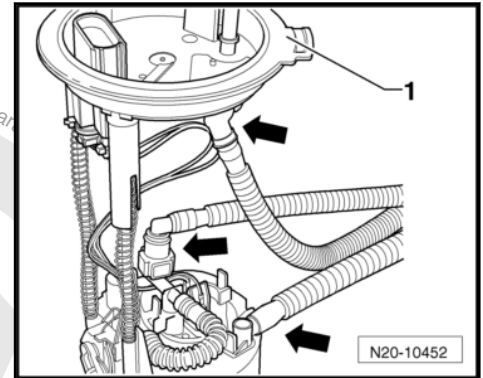
- Make sure all hoses -arrows- are connected.
- Check the fuel lines for possible restrictions (kinks) or blockages.
- Check the fuel lines for leaks and damage.

If no error can be found:

- If the fuel pump is faulty, replace the fuel delivery unit. Refer to ➤ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing” page 36](#) .

Tightening Specifications

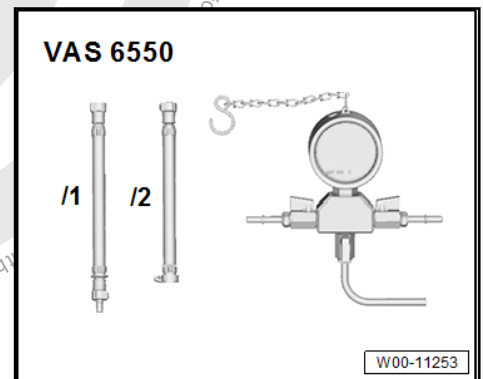
- ◆ Refer to ➤ [“2.1 Overview - Fuel Delivery Unit/Fuel Level Sensor”, page 30](#)



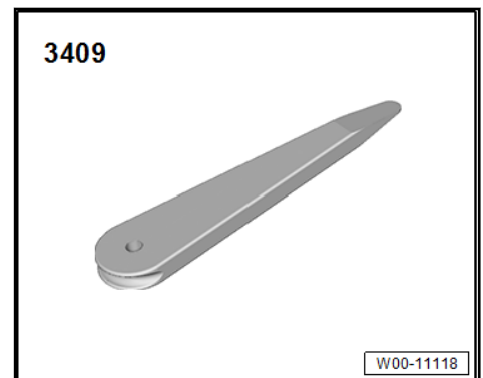
8.1.5 Residual Pressure and Fuel Pressure, Checking, Vehicles with Externally Installed Fuel Filter

Special tools and workshop equipment required

- ◆ Pressure Tester Kit - VAS 6550-



- ◆ Trim Removal Wedge - 3409-



- ◆ Vehicle Diagnostic Tester
- ◆ Pressure Tester Kit - Adapter Set - Hose 3 - VAS 6550/3-3-
- ◆ Pressure Tester Kit - Adapter Set - Hose 4 - VAS 6550/3-4-



Note

- ◆ *The connector couplings must »audibly« engage when locking.*
- ◆ *Note the color coding when installing the connector coupling
⇒ [page 52](#) !*
- ◆ *Pull on the connector coupling to check for secure fit.*
- ◆ *Disconnect the connector couplings. Refer to ⇒ [“4 Connector Couplings”, page 52](#) .*
- Pay attention to the safety precautions. Refer to ⇒ [“1 Safety Precautions”, page 1](#) .
- Follow the guidelines for clean working conditions. Refer to ⇒ [“3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System”, page 6](#) .
- Fuel pressure is OK and the Pressure Tester Kit - VAS 6550- is connected. Fuel Pressure, Checking. Refer to ⇒ [“8.1 Transfer Fuel Pump G6 , Checking”, page 81](#) .

Test sequence:

- Activate the fuel pump using the output diagnostic test mode to build the fuel pressure.
- Read the fuel pressure on the pressure gauge.

Specified Values:

Fuel pressure specified value:	
Vehicles without Fuel Pump Control Module - J538-	3.0 to 4.0 bar (43.51 to 58.02 psi)
Vehicles with Fuel Pump Control Module - J538-	4.0 to 6.0 bar (58.02 to 87.02 psi)

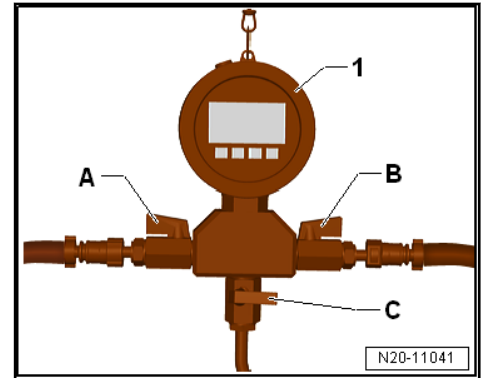
- Observe the decrease in pressure on the pressure gauge. After 10 minutes the pressure must not drop more than approximately 1 bar (14.5 psi).

If the pressure drops:

- Check all of the fuel lines for leaks and damage.

If no faults can be found:

- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.
- The shut-off valves -A- and -B- on the Pressure Tester Kit -1- are open.
- Activate the fuel pump using the output diagnostic test mode to build the fuel pressure.
- Close the shut-off valve -B- on the pressure gauge immediately after the pressure has been reached. The lever is perpendicular to the flow direction.



If the pressure drops again (Leak on fuel tank side):

Proceed as follows to check the fuel filter residual pressure.
 Refer to ➤ [page 101](#) .

If the pressure no longer decreases (leak on the engine side):



Note

Look for the leak on the engine-side. Repeat the residual pressure check. Close the shut-off valve -A- this time to determine if there actually is a leak on the engine side.

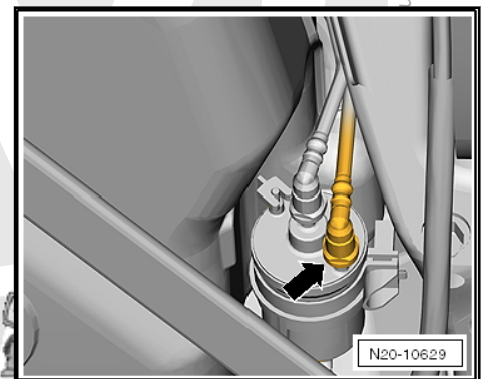
- If there is a leak on the engine-side, check the fuel pipes and high pressure pump for leaks.

If no malfunction is found check the fuel injectors for leaks.

- Remove the spark plugs. Open the shut-off valves -A- and -B-. Activate the fuel pump with the output diagnostic test mode.
- Check through the spark plug hole if fuel is collecting on the piston crown due to a leaking fuel injector.

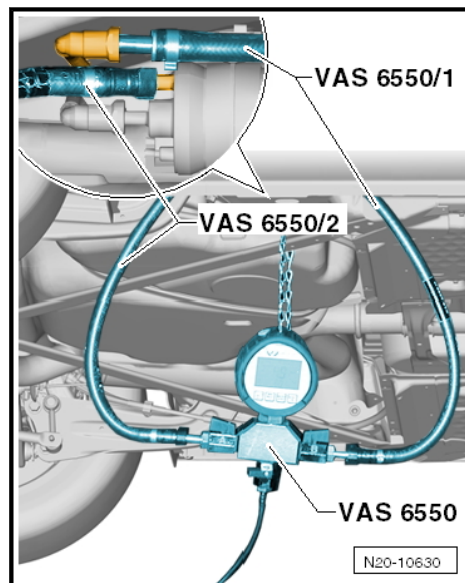
Check the residual pressure before the fuel filter

- Disconnect the fuel supply line -arrow- from the fuel filter. Disconnect the connector couplings. Refer to ➤ [“4 Connector Couplings”, page 52](#) .
- Connect the Pressure Tester Kit - Hose 2 - VAS 6550/2- to the connection -A- on the Pressure Tester Kit - VAS 6550- .

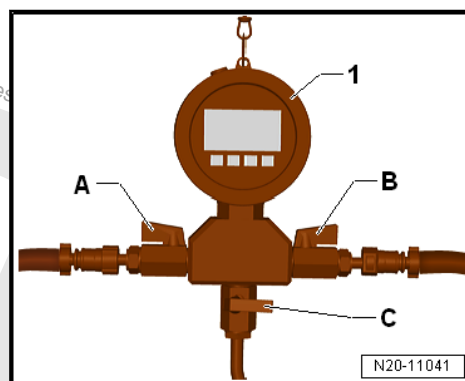




- Connect the Pressure Tester Kit - Hose 1 - VAS 6550/1- to the connection -B- on the Pressure Tester Kit - VAS 6550- .
- Connect the Pressure Tester Kit - VAS 6550- between the fuel filter and the fuel supply line using the Pressure Tester Kit - Hose 1 - VAS 6550/1- and the Pressure Tester Kit - Hose 2 - VAS 6550/2- .
- Pull on the connector couplings to check them for secure fit.



- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.
- The shut-off valves -A- and -B- on the Pressure Tester Kit -1- are open.
- Activate the fuel pump with the output diagnostic test mode to build fuel pressure. Refer to ➤ [page 100](#) .
- Close the shut-off valve -A- once the pressure has increased.
- Observe the decrease in pressure on the pressure gauge. After 10 minutes the pressure must not drop more than approximately 1 bar (14.5 psi).



If the pressure no longer decreases:

- Check the fuel line to the engine for leaks.
- Check the fuel filter for leaks.

If no error can be found:

- Pressure relief valve in fuel filter faulty, replace the fuel filter. Refer to ➤ [“5.2 Fuel Filter, Removing and Installing”, page 58](#) .

If the pressure drops:

Proceed as follows to check the fuel delivery unit residual pressure:

Residual Pressure in Fuel Delivery Unit, Checking

- Remove the bench seat. Refer to ➤ Body Interior; Rep. Gr. 72 ; Rear Seats; Bench Seat / Single Seats, Removing and Installing .



- Unclip the right cover -1- at the tabs -arrows- using the Trim Removal Wedge - 3409- .

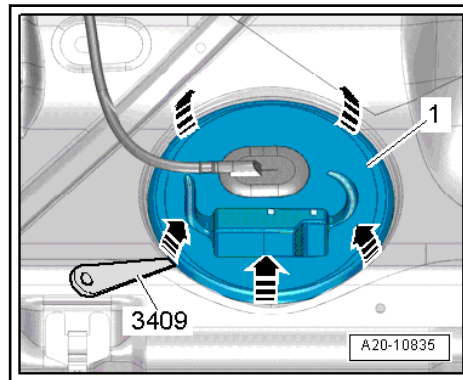


Caution

The fuel system is under pressure.

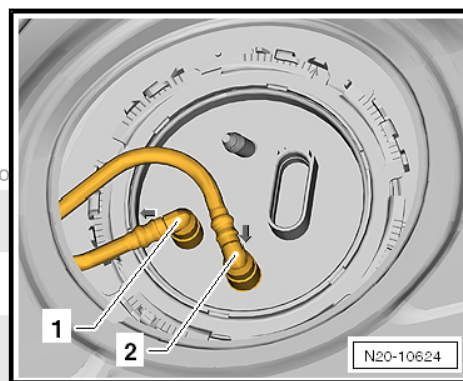
Risk of injury from fuel spraying out.

- *Wear protective eyewear.*
- *Wear safety gloves.*
- *Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.*



- Remove the fuel lines -1- from the flange. Disconnect the connector couplings. Refer to ➔ [“4 Connector Couplings”](#), [page 52](#) .

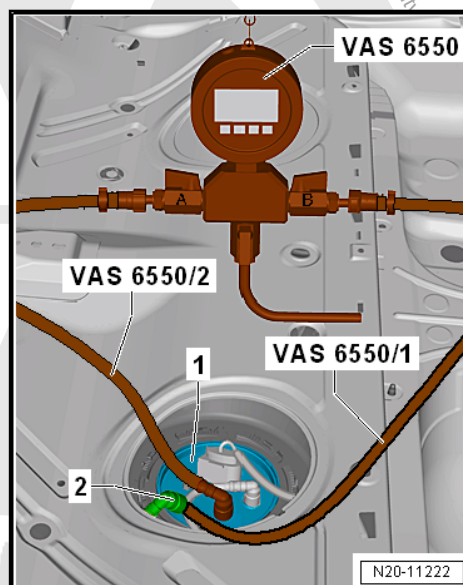
- Connect the Pressure Tester Kit - Hose 2 - VAS 6550/2- between the connection -A- on the Pressure Tester Kit - VAS 6550- and the fuel delivery unit -1-.



- Connect the Pressure Tester Kit - Hose 1 - VAS 6550/1- between the connection -B- on the Pressure Tester Kit - VAS 6550- and the fuel supply line -2-.

- Connect the Pressure Tester Kit - VAS 6550- between the fuel delivery unit and the fuel supply line using the Pressure Tester Kit - Hose 1 - VAS 6550/1- and the Pressure Tester Kit - Hose 2 - VAS 6550/2- .

- Pull on the connector couplings to check them for secure fit.





- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.
- The shut-off valves -A- and -B- on the Pressure Tester Kit -1- are open.
- Activate the fuel pump using the output diagnostic test mode to build the fuel pressure.
- Close the shut-off valve -B- on the pressure gauge immediately after the pressure has been reached. The lever is perpendicular to the flow direction.
- Repeat the residual pressure test.

If the pressure no longer decreases:

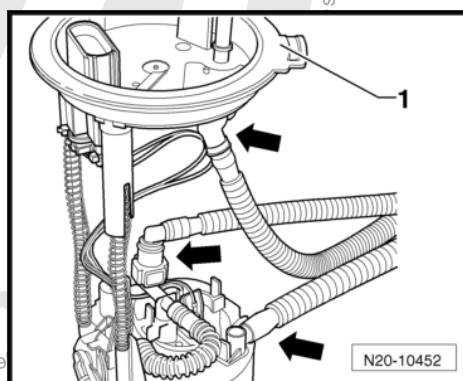
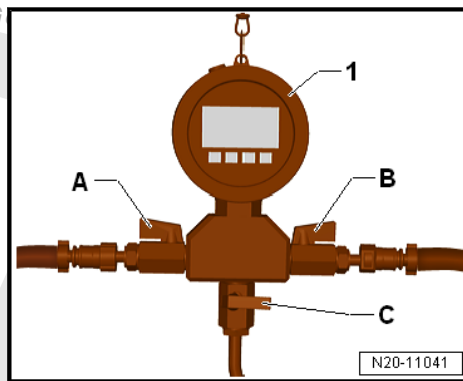
- Check the fuel line for leaks.

If the pressure drops again:

- Remove the fuel delivery unit. Refer to ⇒ ["2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing", page 36](#).
- Make sure all hose connections -arrows- are connected.

If no error can be found:

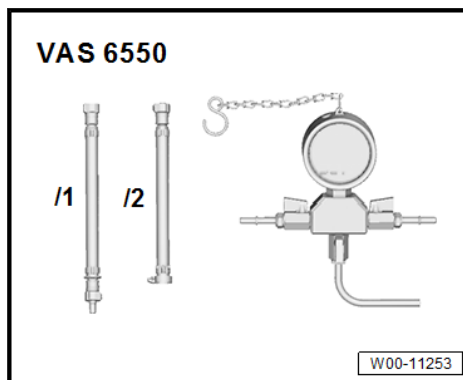
- If the pressure retention valve in the fuel pump is faulty, replace the fuel delivery unit. Refer to ⇒ ["2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing", page 36](#).



8.1.6 Residual Pressure, Checking, Vehicles with Fuel Filter in Fuel Delivery Unit Flange

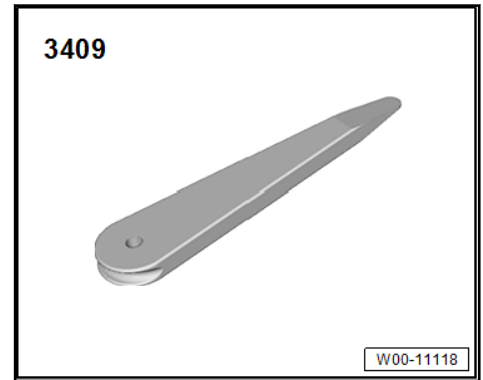
Special tools and workshop equipment required

- ◆ Pressure Tester Kit - VAS 6550-





◆ Trim Removal Wedge - 3409-



◆ Vehicle Diagnostic Tester

Test conditions:

- Voltage supply OK. Refer to ➔ [“8 Fuel Pump”, page 81](#) .
- Fuel pressure is OK. Refer to ➔ [“8.1.4 Fuel Pressure, Checking, Vehicles with Fuel Filter in Fuel Delivery Unit Flange”, page 95](#) .



Note

- ◆ *The connector couplings must »audibly« engage when locking.*
- ◆ *Note the color coding when installing the connector coupling ➔ [page 52](#) !*
- ◆ *Pull on the connector coupling to check for secure fit.*
- ◆ *Disconnect the connector couplings. Refer to ➔ [“4 Connector Couplings”, page 52](#) .*

Test sequence:

- Pay attention to the safety precautions. Refer to ➔ [“1 Safety Precautions”, page 1](#) .
- Follow the guidelines for clean working conditions. Refer to ➔ [“3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System”, page 6](#) .
- Fuel pressure is OK and the Pressure Tester Kit - VAS 6550- is connected. Fuel Pressure, Checking. Refer to ➔ [“8.1 Transfer Fuel Pump G6 , Checking”, page 81](#) .



Note

- ◆ *The fuel pump is now activated to build up the fuel pressure.*
- ◆ *If the output diagnostic test mode is performed several times in succession, it may be necessary to briefly start the motor before repeating the output diagnostic test mode.*
- Read the fuel pressure on the pressure gauge.

Specified Values:

Fuel pressure specified value:	
Vehicles without Fuel Pump Control Module - J538-	3.0 to 4.0 bar (43.51 to 58.02 psi)



Fuel pressure specified value:	
Vehicles with Fuel Pump Control Module - J538-	4.0 to 6.0 bar (58.02 to 87.02 psi)

- Observe the decrease in pressure on the pressure gauge. After 10 minutes the pressure must not drop more than approximately 1 bar (14.5 psi).

If the pressure drops:

- Check the fuel lines inside the engine compartment for leaks and damage.

If no faults can be found:

- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.
- The shut-off valves -A- and -B- on the Pressure Tester Kit -1- are open.
- Activate the fuel pump using the output diagnostic test mode to build the fuel pressure.
- Close the shut-off valve -B- on the pressure gauge immediately after the pressure has been reached. The lever is perpendicular to the flow direction.

If the pressure drops again (Leak on fuel tank side):

Proceed as follows to check residual pressure on the fuel delivery unit. Refer to [page 106](#) .

If the pressure no longer decreases (leak on the engine side):



Note

Look for the leak on the engine-side. Repeat the residual pressure check. Close the shut-off valve -A- this time to determine if there actually is a leak on the engine side.

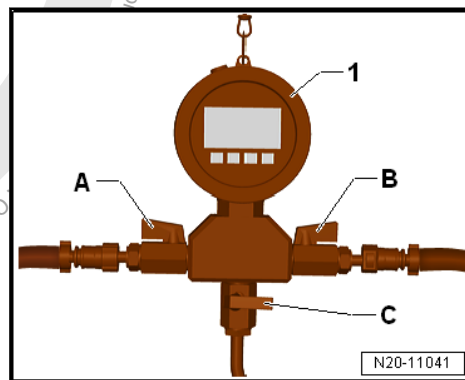
- If there is a leak on the engine-side, check the fuel pipes and high pressure pump for leaks.

If no malfunction is found check the fuel injectors for leaks.

- Remove the spark plugs. Open the shut-off valves -A- and -B-. Activate the fuel pump with the output diagnostic test mode.
- Check through the spark plug hole if fuel is collecting on the piston crown due to a leaking fuel injector.

Residual Pressure in Fuel Delivery Unit, Checking:

- Remove the bench seat. Refer to ➤ Body Interior; Rep. Gr. 72 ; Rear Seats; Bench Seat / Single Seats, Removing and Installing .





- Unclip the right cover -1- at the tabs -arrows- using the Trim Removal Wedge - 3409- .

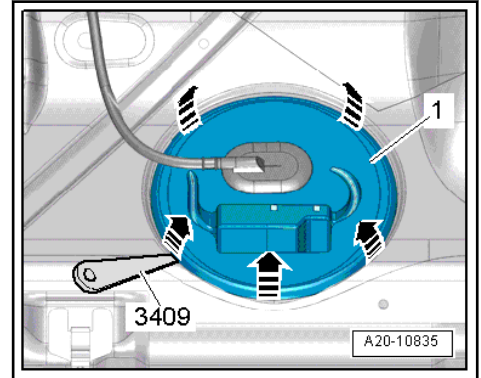


Caution

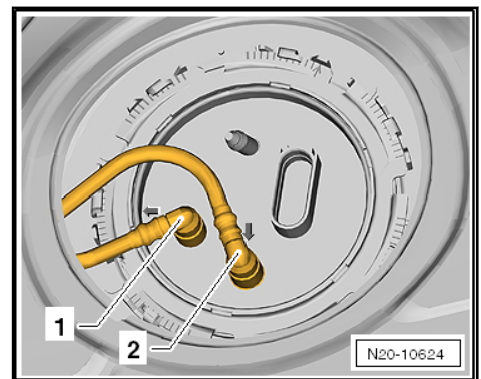
The fuel system is under pressure.

Risk of injury from fuel spraying out.

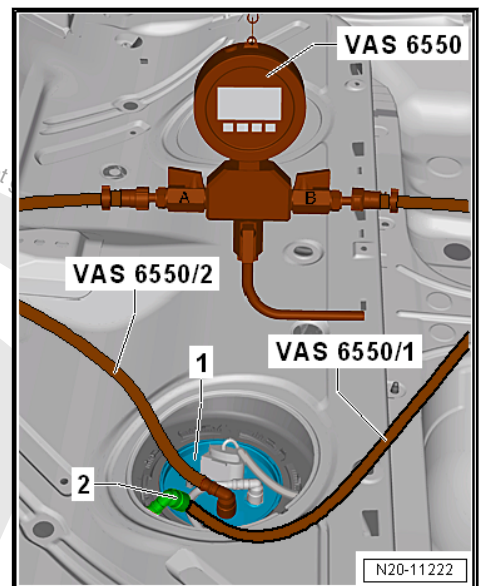
- *Wear protective eyewear.*
- *Wear safety gloves.*
- *Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.*



- Remove the fuel lines -1- from the flange. Disconnect the connector couplings. Refer to ➔ [“4.1 Connector Couplings, Disconnecting”, page 52](#) .
- Connect the Pressure Tester Kit - Hose 2 - VAS 6550/2- between the connection -A- on the Pressure Tester Kit - VAS 6550- and the fuel delivery unit -1-.



- Connect the Pressure Tester Kit - Hose 1 - VAS 6550/1- between the connection -B- on the Pressure Tester Kit - VAS 6550- and the fuel supply line -2-.
- Connect the Pressure Tester Kit - VAS 6550- between the fuel delivery unit and the fuel supply line using the Pressure Tester Kit - Hose 1 - VAS 6550/1- and the Pressure Tester Kit - Hose 2 - VAS 6550/2- .
- Pull on the connector couplings to check them for secure fit.





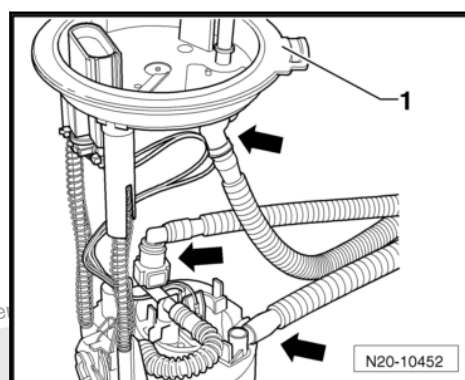
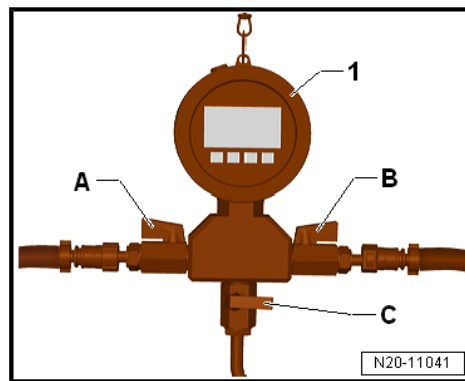
- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.
- The shut-off valves -A- and -B- on the Pressure Tester Kit -1- are open.
- Repeat the residual pressure check. Refer to ➤ [page 105](#) .
- Close the shut-off valve -A- once the pressure has been reached.
- Observe the decrease in pressure on the pressure gauge. After 10 minutes the pressure must not drop more than approximately 1 bar (14.5 psi).

If the pressure drops:

- Remove the fuel delivery unit. Refer to ➤ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .
- Make sure all hoses -arrows- are connected.
- Check the fuel lines for leaks and damage.

If no error can be found:

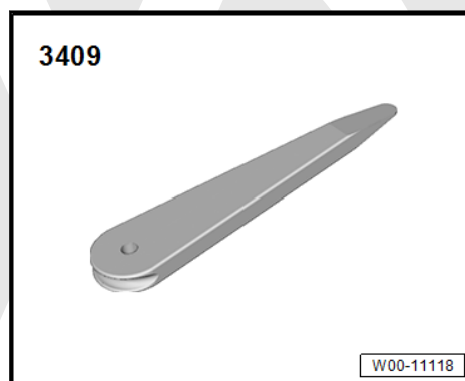
- If the pressure retention valve in the fuel pump is faulty, replace the fuel delivery unit. Refer to ➤ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .



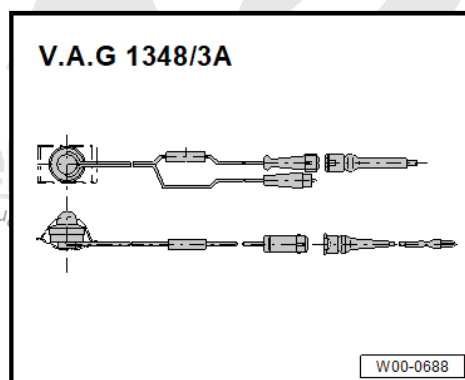
8.1.7 Fuel Delivery Rate, Checking, Vehicles with Externally Installed Fuel Filter

Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-

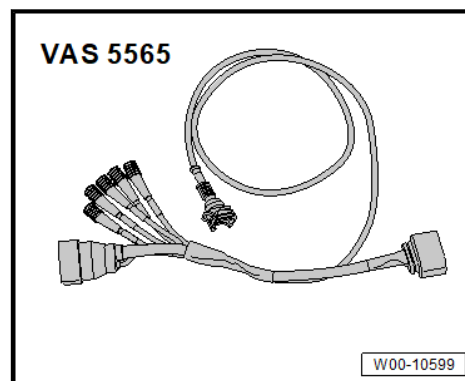


- ◆ Remote Control1348 - V.A.G 1348/3A-





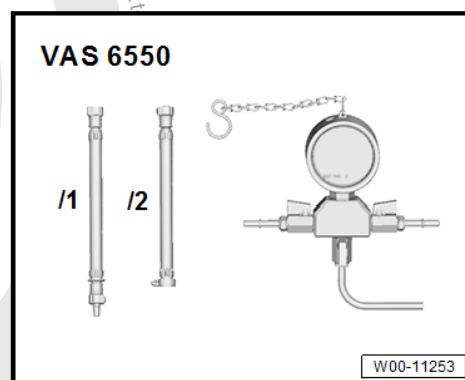
- ◆ Vehicle Diagnostic Tester - Test Adapter - 5 Pin - VAS 5565-



- ◆ Multimeter, for example Analog/Digital Multimeter - FLU83III-



- ◆ Pressure Tester Kit - VAS 6550-



- ◆ Pressure Tester Kit - Regulator Valve - VAS 6550/4-



- ◆ Vehicle Diagnostic Tester
- ◆ Measuring container, three liter



Note

If driving is still impaired with the fuel tank a maximum of $\frac{1}{4}$ full, then perform a fuel delivery test with the fuel tank only $\frac{1}{4}$ full or with very little fuel in the fuel tank.

Test conditions:

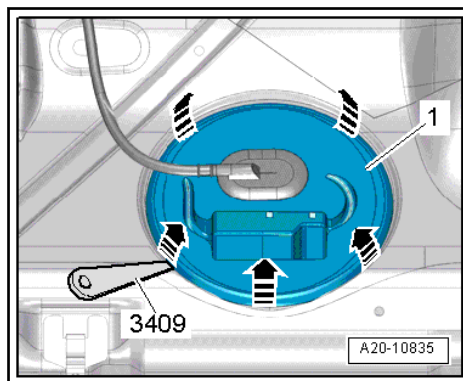
- Voltage supply OK. Refer to ⇒ [“8 Fuel Pump”, page 81](#) .
- Fuel pressure is OK. Refer to ⇒ [“8.1.4 Fuel Pressure, Checking, Vehicles with Fuel Filter in Fuel Delivery Unit Flange”, page 95](#) .
- The battery voltage must be at least 11.5 V. Charge if necessary. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Charging .
- Fuse for Fuel Pump Control Module - J538- is OK. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- Fuel Pump Control Module - J538- is OK. Use the ⇒ Vehicle diagnostic tester.
- Fuel Pump Relay - J17- OK. Use the ⇒ Vehicle diagnostic tester.
- Fuel pump fuse OK. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- Pull on the connector without pressing the release to make sure the connection is secure. Repeat the fuel pump function test if the connector was not connected correctly.
- Fuel level inside the fuel tank is above the reserve

Test sequence:

- Pay attention to the safety precautions. Refer to ⇒ [“1 Safety Precautions”, page 1](#) .
- Follow the guidelines for clean working conditions. Refer to ⇒ [“3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System”, page 6](#) .

Fuel Delivery Rate in Engine Compartment, Checking:

- Remove the rear bench seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Bench Seat / Single Seats, Removing and Installing .
- Unclip the cover -1- at the tabs -arrows- using the Trim Removal Wedge - 3409- .

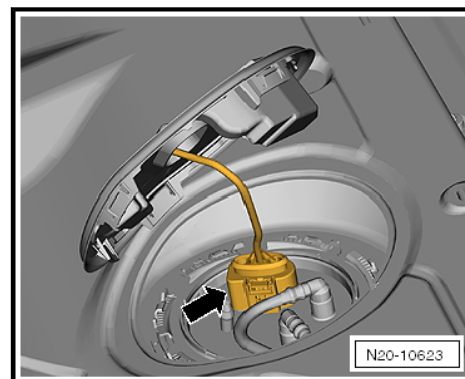




- Pull on the connector -arrow- without pressing the release to make sure the connection is secure.

If the connector was not connected correctly, it could cause a fault.

- Release and disconnect the connector -arrow-.
- Check the contacts on the connector and on the fuel delivery unit for damage.

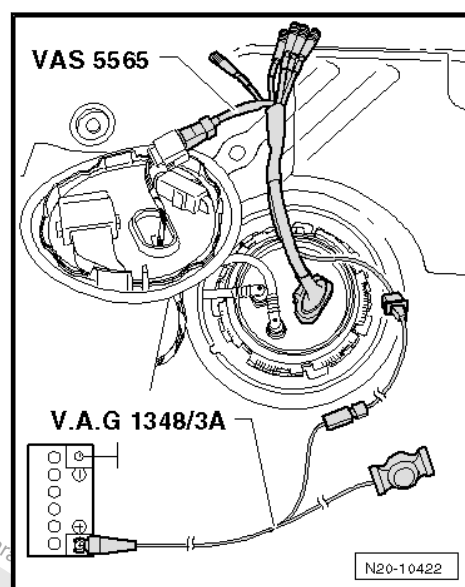


- Attach the Vehicle Diagnostic Tester - Test Adapter - 5 Pin - VAS 5565- to the connector and to the fuel delivery unit.
- Connect the Injection Rate Comparison Meter Kit - Remote Control - V.A.G 1348/3A- to the Vehicle Diagnostic Tester - Test Adapter - 5 Pin - VAS 5565- and battery positive (+).

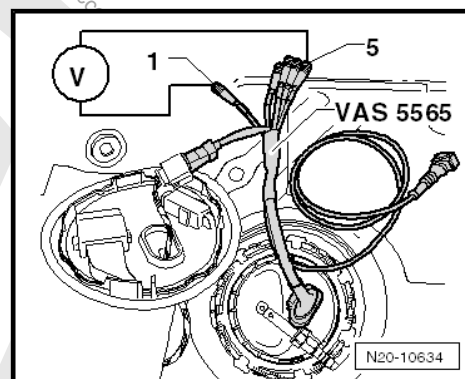


Note

This step allows the fuel pump to run when the engine is not running.



- The fuel pump delivery rate is dependent on the battery voltage. Also connect the Analog/Digital Multimeter - FLU83III- to the wires -1- and -5- on the Vehicle Diagnostic Tester - Test Adapter - 5 Pin - VAS 5565- .





- Remove the supply line (metal coupling) -1-. Disconnect the connector couplings. Refer to ➔ [“4 Connector Couplings”](#), [page 52](#) .

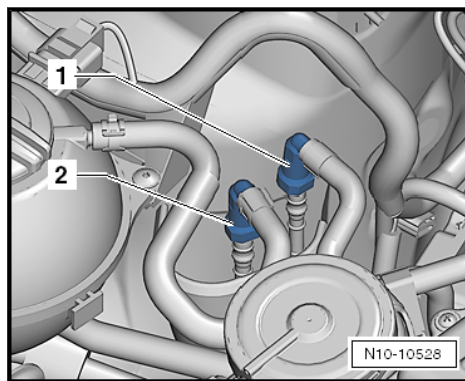


Caution

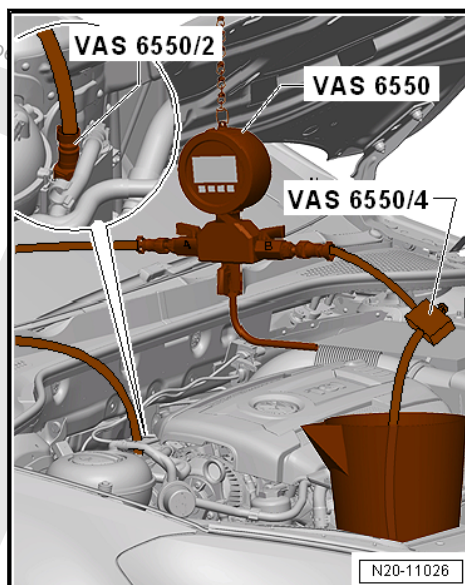
The fuel system is under pressure.

Risk of injury from fuel spraying out.

- *Wear protective eyewear.*
- *Wear safety gloves.*
- *Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.*



- Collect leaking fuel with a cloth.
- Connect the Pressure Tester Kit - Hose 2 - VAS 6550/2- to the connection -A- on the Pressure Tester Kit - VAS 6550- .
- Connect the Pressure Tester Kit - Regulator Valve - VAS 6550/4- to the Pressure Tester Kit - VAS 6550- connection -B-.
- Connect the Pressure Tester Kit - Hose 2 - VAS 6550/2- to the fuel line from the fuel tank.
- Hold the open end of the Pressure Regulator Valve - VAS 6550/4- hose in a measuring container. Have a second technician hold the measuring container and hose so they are secure.
- Pull on the connector couplings to check them for secure fit.





- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.

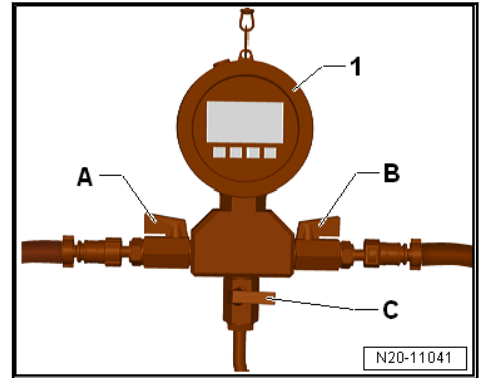


Caution

Risk of a fire due to leaking fuel.

Severe injuries and burns are possible.

- Before the test, check if all connected lines are securely connected by pulling on them.
- Remove any cleaning cloths soaked in fuel from the vehicle area.
- Place the measuring container outside of the vehicle and make sure it is securely positioned.
- With the help of a second technician, make sure the end of the hose stays in the measuring container and the measuring container does not tip over during the test.



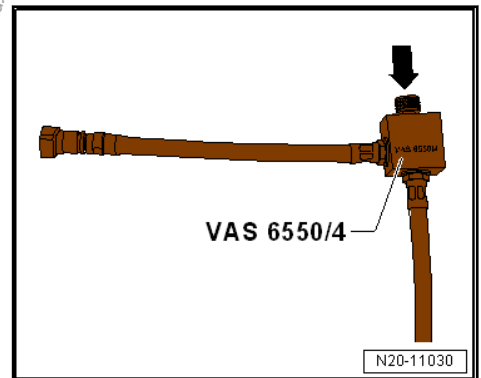
- The shut-off valves -A- and -B- on the Pressure Tester Kit -1- are open.
- Push the Injection Rate Comparison Meter Kit - Remote Control - V.A.G 1348/3A- .



Note

The Transfer Fuel Pump - G6- is activated!

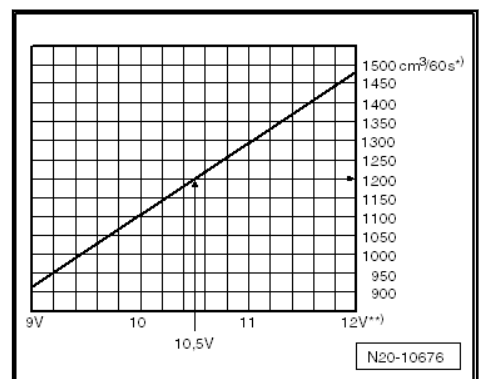
- Adjust the pressure to 4.0 bar (58.02 psi) with the adjustment wheel on the Pressure Regulating Valve -arrow-.
- From this point on do not move the adjustment wheel.
- Empty the measuring container.
- Press the remote control for 60 seconds while measuring the fuel pump voltage.



- Compare the delivered quantity of fuel with the specified value in the table.

Example:

During test, a voltage of 10.5 Volts is measured. This results in a minimum delivery quantity of approximately 1200 cm³/60 s.





If the specified value is not obtained:

- Open the fuel filler door unit -2-.
- Clean the area around the fuel filler neck.
- Remove the cap -1- for the fuel filler neck.
- Repeat the fuel delivery rate test. Refer to [⇒ page 110](#) .

If the specified value is obtained:

- Check the fuel tank breather. Refer to [⇒ “6.6 Fuel Tank, Checking Ventilation”, page 69](#) .

If the specified value is not obtained:

- Check the fuel lines for possible restrictions (kinks) or blockages.
- Check the fuel lines for leaks and damage.

If no error can be found:

Proceed as follows to check the fuel delivery rate to the fuel filter.

Checking the fuel delivery rate to the fuel filter:

- Disconnect the fuel supply line -arrow- from the fuel filter. Disconnect the connector couplings. Refer to [⇒ “4.1 Connector Couplings, Disconnecting”, page 52](#) .

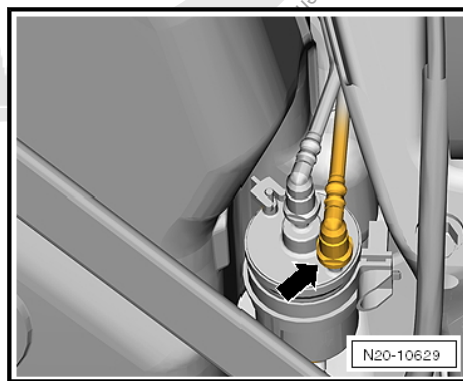
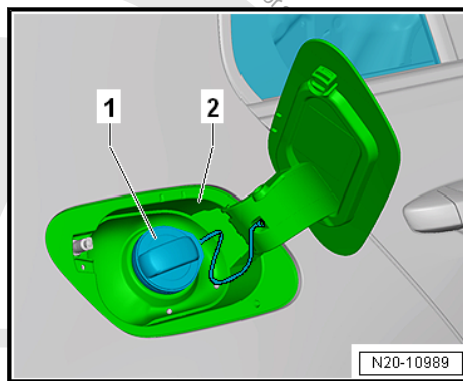


Caution

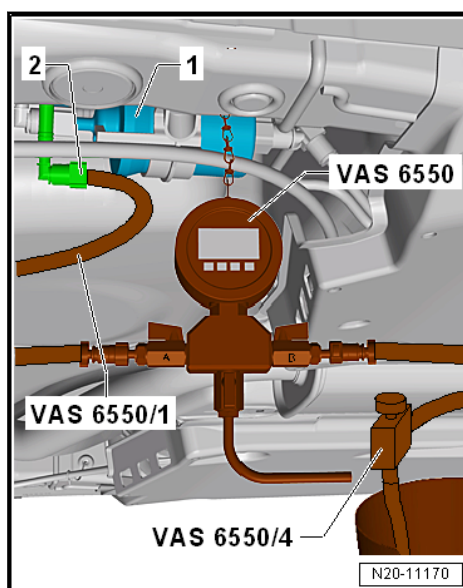
The fuel system is under pressure.

Risk of injury from fuel spraying out.

- *Wear protective eyewear.*
- *Wear safety gloves.*
- *Reduce the pressure; place clean cloths around the connection point and carefully open the connection point.*



- Connect the Pressure Tester Kit - Hose 1 - VAS 6550/1- to the connection -A- on the Pressure Tester Kit - VAS 6550- .
- Connect the Pressure Regulator Valve - VAS 6550/4- to the connection -B- on the Pressure Tester Kit - VAS 6550- .
- Connect the Pressure Tester Kit - VAS 6550- to the fuel supply line -2- with the Pressure Tester Kit - Hose 1 - VAS 6550/1- .
- Hold the open end of the Pressure Regulator Valve - VAS 6550/4- hose in a measuring container. Have a second technician hold the measuring container and hose so they are secure.





- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.
- The shut-off valves -A- and -B- on the Pressure Tester Kit -1- are open.
- Push the Injection Rate Comparison Meter Kit - Remote Control - V.A.G 1348/3A- .



Note

The Transfer Fuel Pump - G6- is activated!

- Adjust the pressure to 4.0 bar (58.02 psi) with the adjustment wheel on the Pressure Regulating Valve -arrow-.
- From this point on do not move the adjustment wheel.
- Empty the measuring container.
- Press the remote control for 60 seconds while measuring the fuel pump voltage.

If the specified value is obtained:

- Check the fuel line to the engine for possible kinks or blockages.
- Check the fuel line to the engine for leaks and damage.

If no malfunction was detected:

- Replace the fuel filter. Refer to ➤ [“5.2 Fuel Filter, Removing and Installing”, page 58](#) .

If the specified value is not obtained:

Check the fuel delivery rate on the fuel delivery unit as follows:

Fuel Delivery Rate, Checking on Fuel Delivery Unit:

- Remove the fuel lines -1- from the flange. Disconnect the connector couplings. Refer to ➤ [“4.1 Connector Couplings, Disconnecting”, page 52](#) .



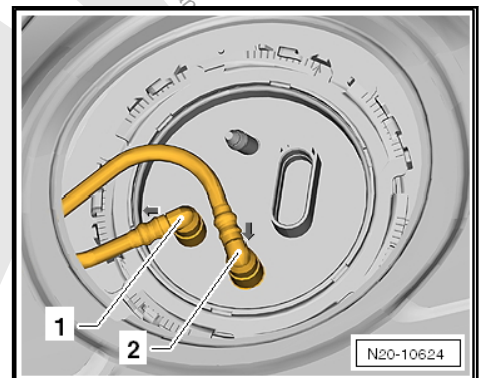
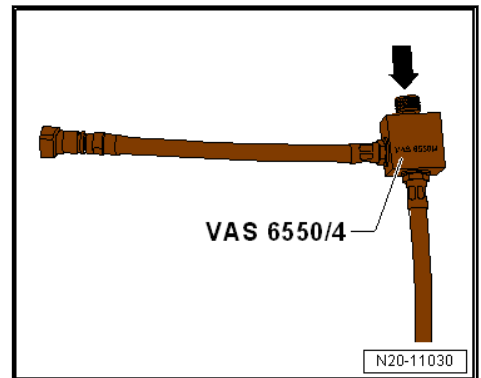
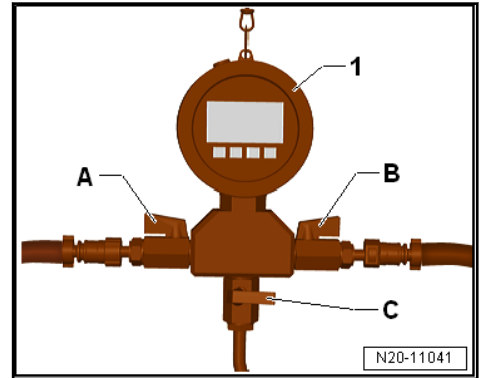
Caution

The fuel system is under pressure.

Risk of injury from fuel spraying out.

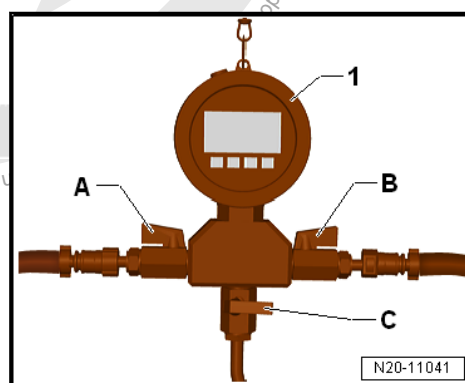
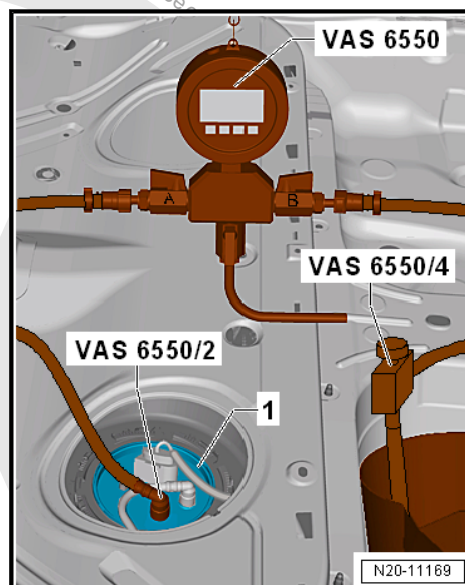
- ***Wear protective eyewear.***
- ***Wear safety gloves.***
- ***Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.***

- Connect the Pressure Tester Kit - Hose 1 - VAS 6550/1- to the connection -A- on the Pressure Tester Kit - VAS 6550- .





- Connect the Pressure Regulator Valve - VAS 6550/4- to the connection -B- on the Pressure Tester Kit - VAS 6550- .
- Connect the Pressure Tester Kit - VAS 6550- to the fuel delivery unit -1- with the Pressure Tester Kit - Hose 2 - VAS 6550/2- .
- Make sure all connected lines are securely in place by pulling on them.
- Place the measuring container -4- outside of the vehicle and make sure it is securely positioned. Use suitable service equipment for this.
- Have a second technician make sure it is securely positioned.
- Hold the open end of the hose coming from the pressure regulating valve in a measuring container -4-.
- Have a second technician ensure the end of the hose stays in the measuring container during the test.
- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.
- The shut-off valves -A- and -B- on the Pressure Tester Kit -1- are open.
- Push the Injection Rate Comparison Meter Kit - Remote Control - V.A.G 1348/3A- .



Caution

Risk of a fire due to leaking fuel.

Severe injuries and burns are possible.

- ***Before the test, check if all connected lines are securely connected by pulling on them.***
- ***Remove any cleaning cloths soaked in fuel from the vehicle area.***



Note

The Transfer Fuel Pump - G6- is activated!



- Adjust the pressure to 4.0 bar (58.02 psi) with the adjustment wheel on the Pressure Regulating Valve -arrow-.
- From this point on do not move the adjustment wheel.
- Empty the measuring container.
- Press the remote control for 60 seconds while measuring the fuel pump voltage.

If the specified value is not obtained:

- Remove the fuel delivery unit. Refer to ➤ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .
- Check the fuel lines for possible restrictions (kinks) or blockages.
- Check the filter screen on the fuel delivery unit for debris.
- Check the fuel lines for leaks and damage.
- Check whether the hose connections -arrows- to the fuel delivery unit -1- are sealed.

If no malfunction was detected:

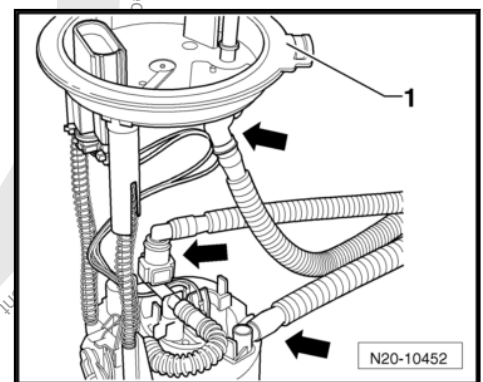
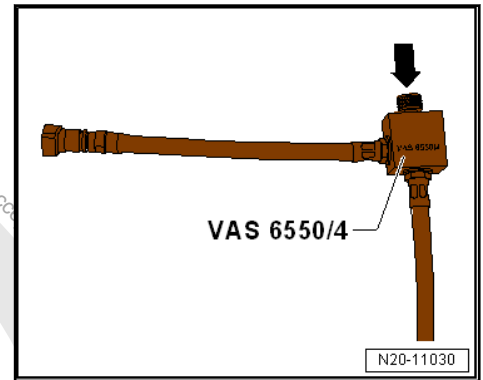
- Check the current draw of the fuel pump. Refer to ➤ [“8.1.9 Current Draw, Checking”, page 125](#) .

If no faults were found while checking the current draw:

- Replace the fuel delivery unit. Refer to ➤ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .

If the fuel delivery rate was reached, even though a fault in the fuel supply is still suspected (for example, intermittent loss of fuel supply):

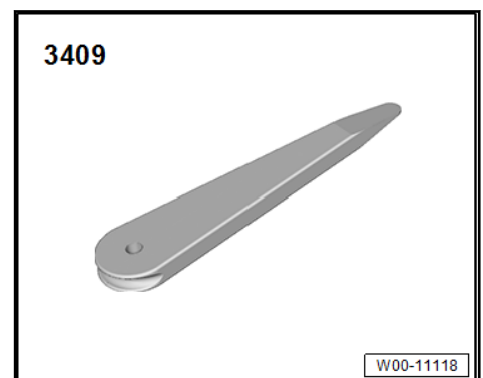
- Check the current draw of the fuel pump. Refer to ➤ [“8.1.9 Current Draw, Checking”, page 125](#) .



8.1.8 Fuel Delivery Rate, Checking, Vehicles with Fuel Filter in Fuel Delivery Unit Flange

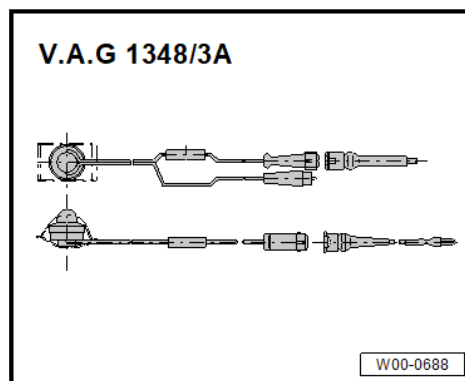
Special tools and workshop equipment required

- ◆ Trim Removal Wedge - 3409-

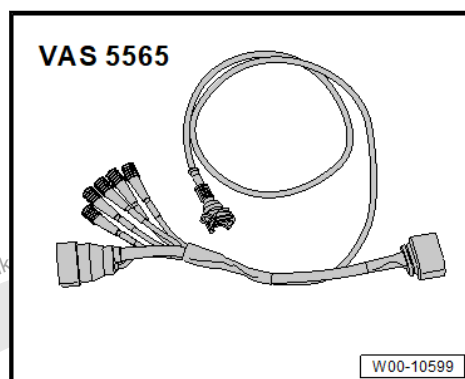




◆ Remote Control1348 - V.A.G 1348/3A-



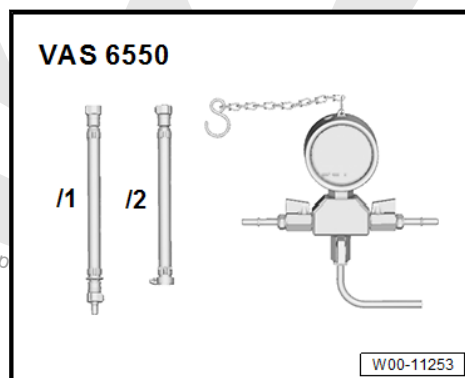
◆ Vehicle Diagnostic Tester - Test Adapter - 5 Pin - VAS 5565-



◆ Multimeter, for example Analog/Digital Multimeter - FLU83III-

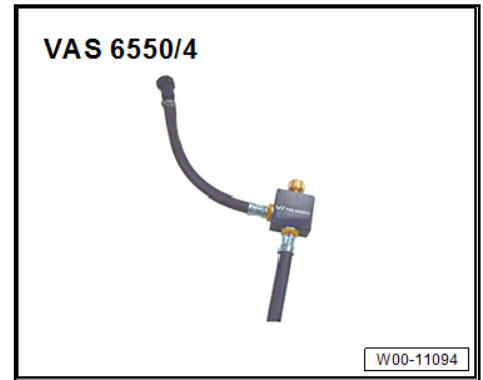


◆ Pressure Tester Kit - VAS 6550-





◆ Pressure Tester Kit - Regulator Valve - VAS 6550/4-



- ◆ Vehicle Diagnostic Tester
- ◆ Measuring container, three liter



Note

If driving is still impaired with the fuel tank a maximum of $\frac{1}{4}$ full, then perform a fuel delivery test with the fuel tank only $\frac{1}{4}$ full or with very little fuel in the fuel tank.

Test conditions:

- Voltage supply OK. Refer to ⇒ [“8 Fuel Pump”, page 81](#) .
- Fuel pressure is OK. Refer to ⇒ [“8.1.4 Fuel Pressure, Checking, Vehicles with Fuel Filter in Fuel Delivery Unit Flange”, page 95](#) .
- The battery voltage must be at least 11.5 V. Charge if necessary. Refer to ⇒ Electrical Equipment; Rep. Gr. 27 ; Battery; Battery, Charging .
- Fuse for Fuel Pump Control Module - J538- is OK. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- Fuel Pump Control Module - J538- is OK. Use the ⇒ Vehicle diagnostic tester.
- Fuel Pump Relay - J17- OK. Use the ⇒ Vehicle diagnostic tester.
- Fuel pump fuse OK. Refer to ⇒ Wiring diagrams, Troubleshooting & Component locations.
- Pull on the connector without pressing the release to make sure the connection is secure. Repeat the fuel pump function test if the connector was not connected correctly.
- Fuel level inside the fuel tank is above the reserve

Test sequence:

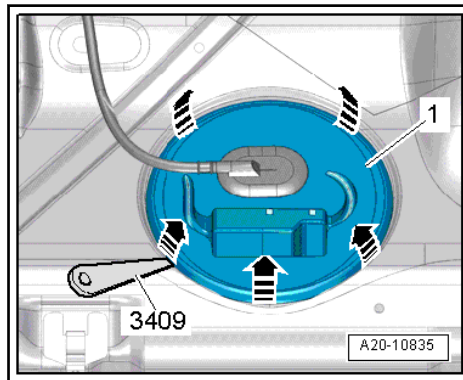
- Pay attention to the safety precautions. Refer to ⇒ [“1 Safety Precautions”, page 1](#) .
- Follow the guidelines for clean working conditions. Refer to ⇒ [“3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System”, page 6](#) .

Fuel Delivery Rate in Engine Compartment, Checking:

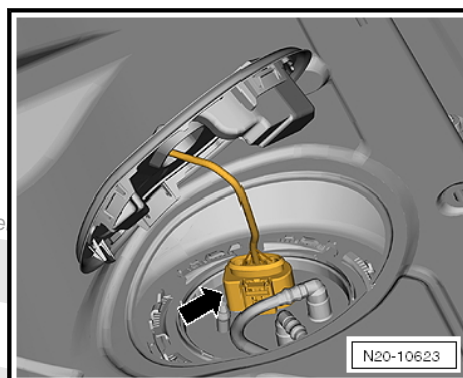
- Remove the rear bench seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Bench Seat / Single Seats; Removing and Installing .



- Unclip the cover -1- at the tabs -arrows- using the Trim Removal Wedge - 3409- .



- Pull on the connector -arrow- without pressing the release to make sure the connection is secure.
- If the connector was not connected correctly, it could cause a fault.
- Release and disconnect the connector -arrow-.
- Check the contacts on the connector and on the fuel delivery unit for damage.

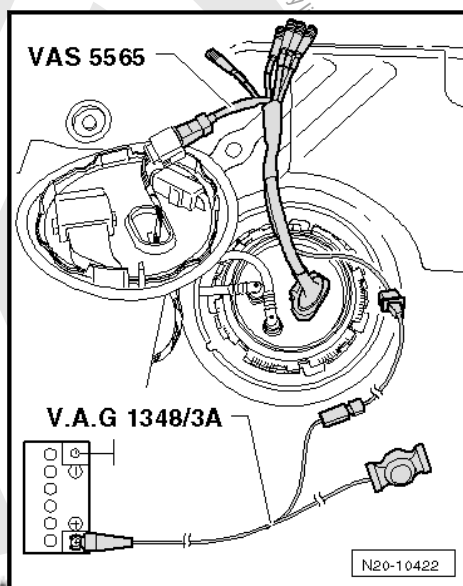


- Attach the Vehicle Diagnostic Tester - Test Adapter - 5 Pin - VAS 5565- to the connector and to the fuel delivery unit.
- Connect the Injection Rate Comparison Meter Kit - Remote Control - V.A.G 1348/3A- to the Vehicle Diagnostic Tester - Test Adapter - 5 Pin - VAS 5565- and battery positive (+).

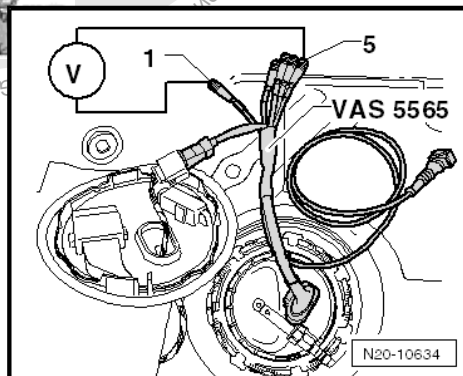


Note

This step allows the fuel pump to run when the engine is not running.



- The fuel pump delivery rate is dependent on the battery voltage. Also connect the Analog/Digital Multimeter - FLU83III- to the wires -1- and -5- on the Vehicle Diagnostic Tester - Test Adapter - 5 Pin - VAS 5565- .





- Remove the supply line -1-. Disconnect the connector couplings. Refer to ➤ [“4.1 Connector Couplings, Disconnecting”](#), [page 52](#) .
- Collect leaking fuel with a cloth.

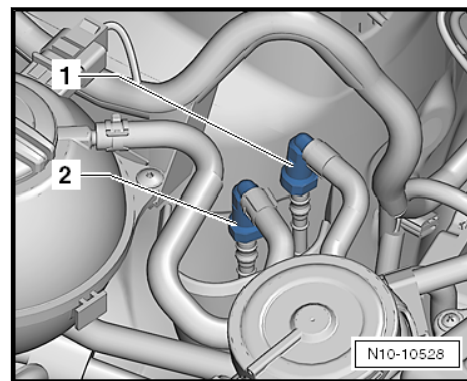


Caution

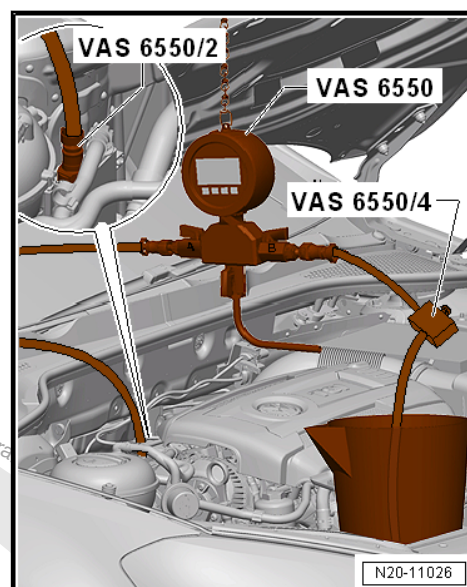
The fuel system is under pressure.

Risk of injury from fuel spraying out.

- *Wear protective eyewear.*
- *Wear safety gloves.*
- *Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.*



- Connect the Pressure Tester Kit - Hose 2 - VAS 6550/2- to the connection -A- on the Pressure Tester Kit - VAS 6550- .
- Connect the Pressure Tester Kit - Regulator Valve - VAS 6550/4- to the Pressure Tester Kit - VAS 6550- connection -B-.
- Connect the Pressure Tester Kit - Hose 2 - VAS 6550/2- to the fuel line from the fuel tank.
- Hold the open end of the Pressure Regulator Valve - VAS 6550/4- hose in a measuring container. Have a second technician hold the measuring container and hose so they are secure.
- Pull on the connector couplings to check them for secure fit.





- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.

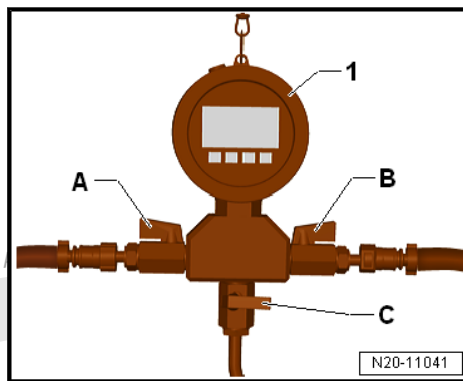


Caution

Risk of a fire due to leaking fuel.

Severe injuries and burns are possible.

- Before the test, check if all connected lines are securely connected by pulling on them.
- Remove any cleaning cloths soaked in fuel from the vehicle area.
- Place the measuring container outside of the vehicle and make sure it is securely positioned.
- With the help of a second technician, make sure the end of the hose stays in the measuring container and the measuring container does not tip over during the test.



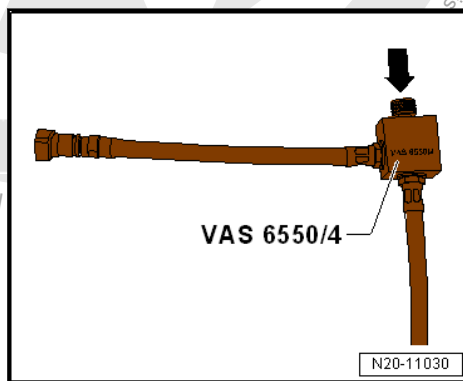
- The shut-off valves -A- and -B- on the Pressure Tester Kit -1- are open.
- Push the Injection Rate Comparison Meter Kit - Remote Control - V.A.G 1348/3A- .



Note

The Transfer Fuel Pump - G6- is activated!

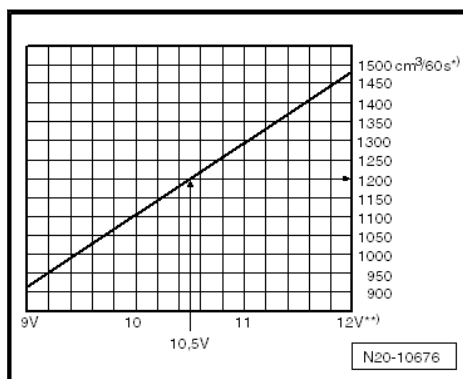
- Adjust the pressure to 4.0 bar (58.02 psi) with the adjustment wheel on the Pressure Regulating Valve -arrow-.
- From this point on do not move the adjustment wheel.
- Empty the measuring container.
- Press the remote control for 60 seconds while measuring the fuel pump voltage.



- Compare the delivered quantity of fuel with the specified value in the table.

Example:

During test, a voltage of 10.5 Volts is measured. This results in a minimum delivery quantity of approximately 1200 cm³/60 s.





If the specified value is not obtained:

- Open the fuel filler door unit -2-.
- Clean the area around the fuel filler neck.
- Remove the cap -1- for the fuel filler neck.
- Check the fuel delivery rate again. Refer to ➤ [page 110](#) .

If the specified value is obtained:

- Check the fuel tank breather. Refer to ➤ [“6.6 Fuel Tank, Checking Ventilation”, page 69](#).

If the specified value is not obtained:

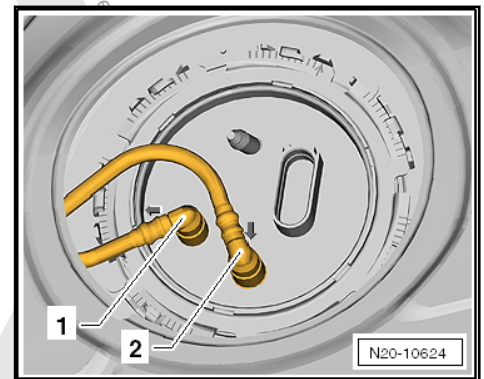
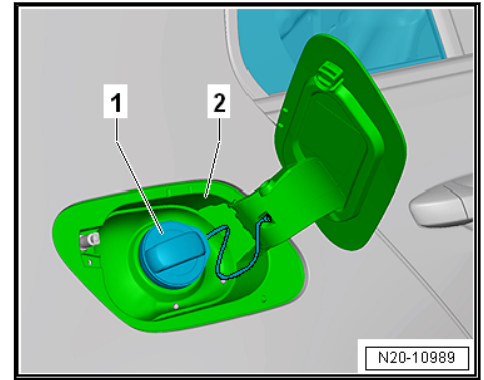
- Check the fuel lines for possible restrictions (kinks) or blockages.
- Check the fuel lines for leaks and damage.

If no error can be found:

Check the fuel delivery rate on the fuel delivery unit as follows:

Fuel Delivery Rate, Checking on Fuel Delivery Unit:

- Remove the fuel lines -1- from the flange. Disconnect the connector couplings. Refer to ➤ [“4.1 Connector Couplings, Disconnecting”, page 52](#) .



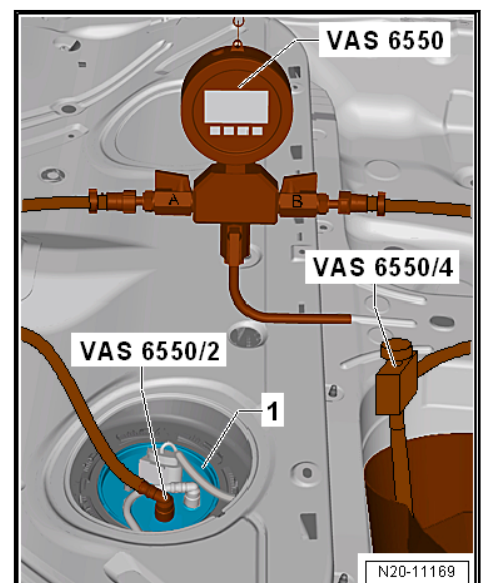
Caution

The fuel system is under pressure.

Risk of injury from fuel spraying out.

- *Wear protective eyewear.*
- *Wear safety gloves.*
- *Reduce the pressure: place clean cloths around the connection point and carefully open the connection point.*

- Connect the Pressure Tester Kit - Hose 1 - VAS 6550/1- to the connection -A- on the Pressure Tester Kit - VAS 6550- .
- Connect the Pressure Regulator Valve - VAS 6550/4- to the connection -B- on the Pressure Tester Kit - VAS 6550- .
- Connect the Pressure Tester Kit - VAS 6550- to the fuel delivery unit -1- with the Pressure Tester Kit - Hose 2 - VAS 6550/2- .
- Make sure all connected lines are securely in place by pulling on them.
- Place the measuring container -4- outside of the vehicle and make sure it is securely positioned. Use suitable service equipment for this.
- Have a second technician make sure it is securely positioned.
- Hold the open end of the hose coming from the pressure regulating valve in a measuring container -4-.
- Have a second technician ensure the end of the hose stays in the measuring container during the test.





- Make sure that the drain valve -C- on the Pressure Tester -1- is closed.

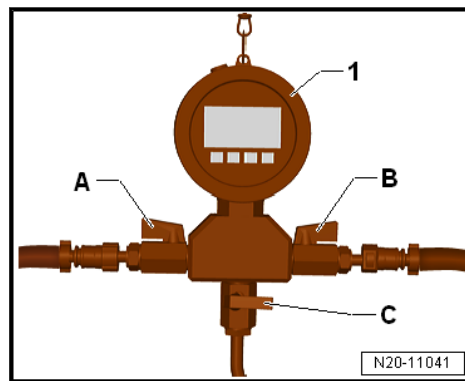


Caution

Risk of a fire due to leaking fuel.

Severe injuries and burns are possible.

- Before the test, check if all connected lines are securely connected by pulling on them.
- Remove any cleaning cloths soaked in fuel from the vehicle area.



- The shut-off valves -A- and -B- on the Pressure Tester Kit -1- are open.
- Push the Injection Rate Comparison Meter Kit - Remote Control - V.A.G 1348/3A- .



Note

The Transfer Fuel Pump - G6- is activated!

- Adjust the pressure to 4.0 bar (58.02 psi) with the adjustment wheel on the Pressure Regulating Valve -arrow-.
- From this point on do not move the adjustment wheel.
- Empty the measuring container.
- Press the remote control for 60 seconds while measuring the fuel pump voltage.

If the specified value is not obtained:

- Remove the fuel delivery unit. Refer to ➤ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .
- Check the fuel lines for possible restrictions (kinks) or blockages.
- Check the filter screen on the fuel delivery unit for debris.
- Check the fuel lines for leaks and damage.
- Check whether the hose connections -arrows- to the fuel delivery unit -1- are sealed.

If no malfunction was detected:

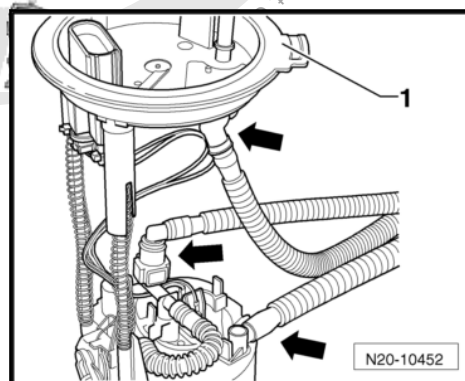
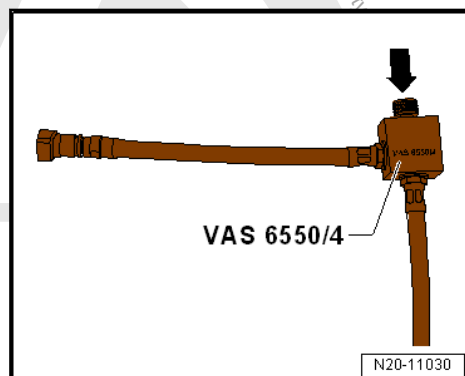
- Check the current draw of the fuel pump. Refer to ➤ [“8.1.9 Current Draw, Checking”, page 125](#) .

If no faults were found while checking the current draw:

- Replace the fuel delivery unit. Refer to ➤ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#) .

If the fuel delivery rate was reached, even though a fault in the fuel supply is still suspected (for example, intermittent loss of fuel supply):

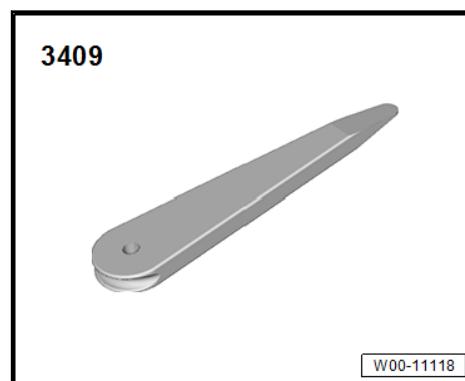
- Check the current draw of the fuel pump. Refer to ➤ [“8.1.9 Current Draw, Checking”, page 125](#) .



8.1.9 Current Draw, Checking

Special tools and workshop equipment required

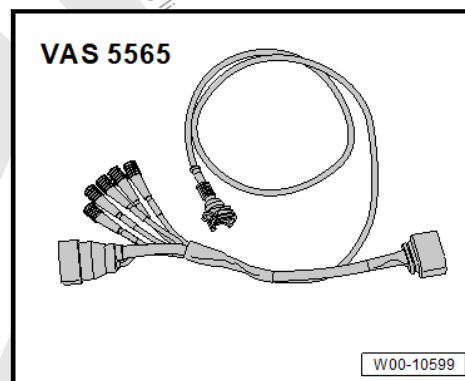
- ◆ Trim Removal Wedge - 3409-



- ◆ Multimeter, for example Analog/Digital Multimeter - FLU83III-



- ◆ Vehicle Diagnostic Tester - Test Adapter - 5 Pin - VAS 5565-



- ◆ Pickup Clamp such as Pickup Clamp - V.A.G 1526B/2-

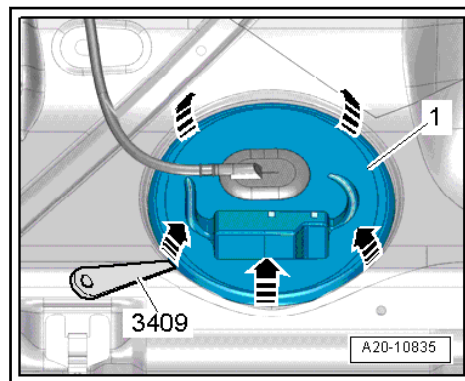


Note

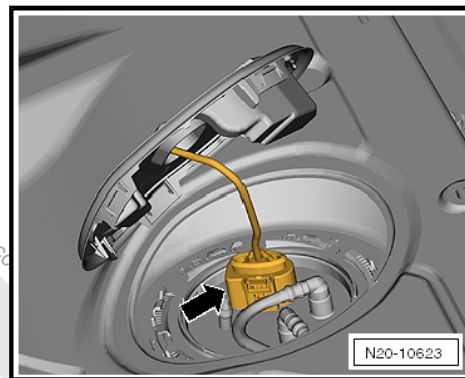
- ◆ The connector couplings must »audibly« engage when locking.
- ◆ Note the color coding when installing the connector coupling ⇒ [page 52](#) !
- ◆ Pull on the connector coupling to check for secure fit.
- ◆ Disconnect the connector couplings. Refer to ⇒ ["4 Connector Couplings", page 52](#) .
- Voltage supply OK:



- Pay attention to the safety precautions. Refer to ⇒ [“1 Safety Precautions”, page 1](#) .
- Follow the guidelines for clean working conditions. Refer to ⇒ [“3.1 Guidelines for Clean Working Conditions on Parking/Auxiliary Heater and Fuel System”, page 6](#) .
- Remove the bench seat. Refer to ⇒ Body Interior; Rep. Gr. 72 ; Rear Seats; Bench Seat / Single Seats, Removing and Installing .
- Unclip the cover -1- at the tabs -arrows- using the Trim Removal Wedge - 3409- .



- Pull on the connector -arrow- without pressing the release to make sure the connection is secure.
- If the connector was not connected correctly, it could cause a fault.
- Release and disconnect the connector -arrow-.
- Check the contacts on the connector and on the fuel delivery unit for damage.



-
- Diagram illustrating the connection of the VAS 5565 diagnostic tool to the vehicle's diagnostic port. The tool is connected to the port, and the label "N20-10424" is present in the bottom right corner.

- ◆ *The fuel pump starting current may be higher than the specified value briefly when starting the engine.*
- ◆ *If the malfunction in the fuel system only occurs sporadically, the test can also be performed during a road test. A second person is required to do this.*

- Check the fuel lines for possible restrictions (kinks) or blockages.
- Remove the fuel delivery unit (refer to ⇒ [“2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36](#)) and inspect it for debris.
- Fuel Pressure, Checking. Refer to ⇒ [“8.1.4 Fuel Pressure, Checking, Vehicles with Fuel Filter in Fuel Delivery Unit Flange”, page 95](#).

- Replace the fuel delivery unit. Refer to ⇒ “2.2 Fuel Delivery Unit/Fuel Level Sensor, Removing and Installing”, page 36.

any copyright. Copying for private or commercial purposes in print

Cautions & Warnings

Please read these WARNINGS and CAUTIONS before proceeding with maintenance and repair work. You must answer that you have read and you understand these WARNINGS and CAUTIONS before you will be allowed to view this information.

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized Volkswagen retailer or other qualified shop. We especially urge you to consult an authorized Volkswagen retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Volkswagen.
- Disconnect the battery negative terminal (ground strap) whenever you work on the fuel system or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.
- Volkswagen is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Volkswagen retailer parts department for the latest information.
- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the Volkswagen Factory Approved Scan Tool (ST).
- Never work under a lifted vehicle unless it is solidly supported on stands designed for the purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a vehicle that is supported solely by a jack. Never work under the vehicle while the engine is running.
- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.
- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it
- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset or have taken medicine or any other substances that may impair you or keep you from being fully alert.
- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.
- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.
- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.
- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are designed to be used only once and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.



Cautions & Warnings

- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.
- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust. Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.
- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.
- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the instructions thoroughly; do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Volkswagen specifications. Makeshift tools, parts and procedures will not make good repairs.
- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.
- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque listed.
- Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping hydrogen gas is ignited, it will ignite gas trapped in the cells and cause the battery to explode.
- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.
- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The A/C system should be serviced only by trained automotive service technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.
- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery negative terminal (ground strap) and the ABS control module connector.
- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat will increase system pressure and may cause the system to burst.
- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).
- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Volkswagen Service technicians should test, disassemble or service the airbag system.

Cautions & Warnings

- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute before boosting the battery a second time.
- Never use a test light to conduct electrical tests of the airbag system. The system must only be tested by trained Volkswagen Service technicians using the Volkswagen Factory Approved Scan Tool (ST) or an approved equivalent. The airbag unit must never be electrically tested while it is not installed in the vehicle.
- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.
- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.

I have read and I understand these Cautions and Warnings.

